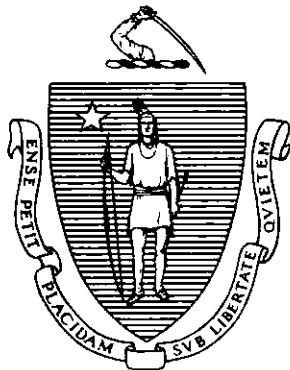


**Commonwealth of Massachusetts**

**Division of Public Employee  
Retirement Administration**



**INVESTMENT REPORT**

**MASSACHUSETTS CONTRIBUTORY RETIREMENT  
SYSTEMS FOR PUBLIC EMPLOYEES**

**DECEMBER 31, 1991**

**WILLIAM F. WELD**  
**Governor**

**PETER NESSEN**  
**Secretary of Administration**  
**and Finance**

**JOHN J. McGLYNN**  
**Commissioner**  
**Public Employee Retirement Administration**

JUNE 12, 1992

I am pleased to release PERA's 1991 Investment Performance Report. In 1991, systems rebounded from the poor market of 1990 and were rewarded for professional management and patience. Without equivocation the reforms of C.661 of the Acts of 1983 have been an unqualified success. Allocation of assets reflects modern investment practice in contrast to a decade ago when that allocation reflected Depression Era fears.

In 1991, the average return was 19.28%. In the 1985-1991 period that return has been 12.12%. Assets have grown from \$6.4 Billion in 1985 to \$14.6 Billion in 1991. Investment activities have made a lasting contribution to stabilizing the fiscal condition of our retirement systems. Rejection of the temptation to defund the system in the interests of expedience combined with continuance of this trend will lead to full funding.

Retirement boards were well-positioned for the market of 1991. Long-range strategies had avoided serious losses in the poor markets of 1987 and 1990. When investment restrictions were lifted, some were concerned about the ability of the Boards to use their broader authority wisely. The experience of the last seven years proves that these fears were unfounded. In fact, much of the recent controversy regarding investment of these funds centers around systems which, until recently, had chosen not to retain professional money management.

Boards, as fiduciaries, must aggressively monitor costs and seek to obtain services at reasonable rates. More importantly, Boards must act to insure that services are rendered in an objective manner and that all relevant information is disclosed by those seeking to do business with a Board. This is particularly necessary in the area of marketing fees or other third party arrangements.

PERA's role in the investment area extends beyond the production of this report. Statutory responsibilities include approving investment waivers, conducting audits and reviewing statutory compliance. In the last several years, we have assisted the Boards in the recovery of over \$2.1 million owed by various parties.

Massachusetts public pension funds have performed well in positive and negative market environments. The funds have made great progress in professionalizing management and in comprehensive investment planning. Although the years ahead will no doubt prove challenging, I am confident that the Retirement Boards of the Commonwealth will continue their success.

Sincerely,  
  
John J. McGlynn  
Commissioner

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**PART I:**

***ANNUAL REPORT OF THE MASSACHUSETTS CONTRIBUTORY  
RETIREMENT SYSTEMS FOR THE YEAR ENDING DECEMBER 31, 1991***

Public employees in Massachusetts are members of 106 retirement systems at the state, county, city and municipal levels. Each system is administered by a three member board consisting of an ex-officio member, a member elected by employees and retirees and a member jointly chosen by the ex-officio and elected members. The Board's responsibilities include awarding benefits, managing cash flows and the investment of assets. The subject of this report is the Retirement Boards' activity in the investment area.

The Division of Public Employee Retirement Administration (PERA) is statutorily directed to oversee the retirement systems. In the investment area, PERA has specific responsibilities in allowing assets to be invested in a more flexible manner, in measuring performance and in conducting audits to assure that assets are invested properly.

Retirement Boards have three investment options under Massachusetts law:

- (1) Assets may be invested according to the statutory "Legal List";
- (2) Investment authority may be delegated to professional money managers who may invest according to the prudent person standard; or
- (3) Assets may be transferred to the Pension Reserve Investment Trust (PRIT) Fund and invested by the Pension Reserve Investment Management (PRIM) Board according to the prudent person standard.

One goal of pension fund investing is an increase in assets to help defray the cost of benefits. This goal is more relevant to the Massachusetts pension plans due to the unfunded liabilities which exist in the systems. These liabilities, which are a result of the "pay as you go" financing mechanism used to pay retirement benefits, are substantial and represent a tremendous drain on public resources. Asset growth due to increased investment return can help relieve the pressure the unfunded liabilities place on state and local budgets.

In reviewing investment performance, PERA has established rates of return for one-year, three-years, five-years and January 1, 1985 - December 31, 1991 which is when PERA began evaluating returns. The information contained in this study will enable Board members to make knowledgeable decisions in this area and will provide employees, public officials and taxpayers with insight to the investment of public pension monies.

Investment return has a critical impact on costs. This is underscored by the actuarial valuation of each system which assesses the value of assets and liabilities. Achievement of the expected rate of return is a minimum in maintaining the ratio between assets and liabilities. A return in excess of the expected return will improve a system's funded status.

The expected rate of return used in the most recent actuarial report of the Massachusetts systems is 8%. In 1991, the average rate of return was 19.28%, from 1989-1991, the average rate of return was 11.92%, from 1987-1991, the average rate of return was 9.50% and from 1985-1991, the average rate of return was 12.12%. (See Figures 1 and 2.)

**Annual Returns ( % )**

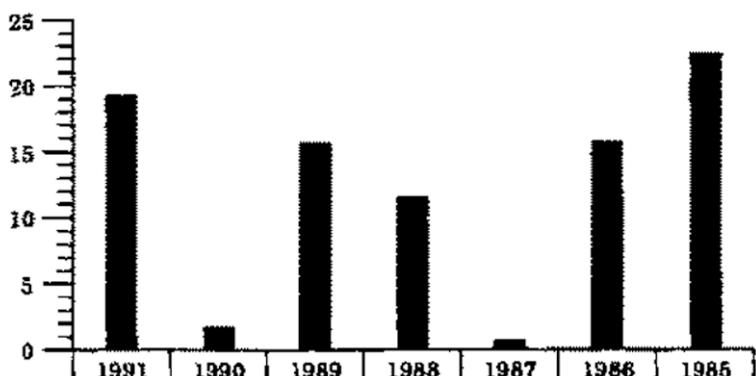


Figure 1

**Average Returns ( % )**

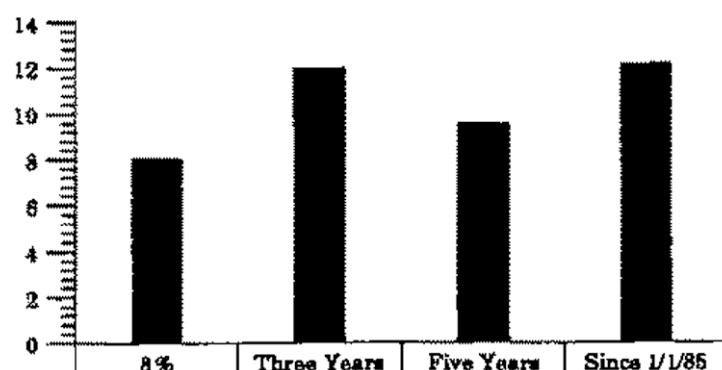


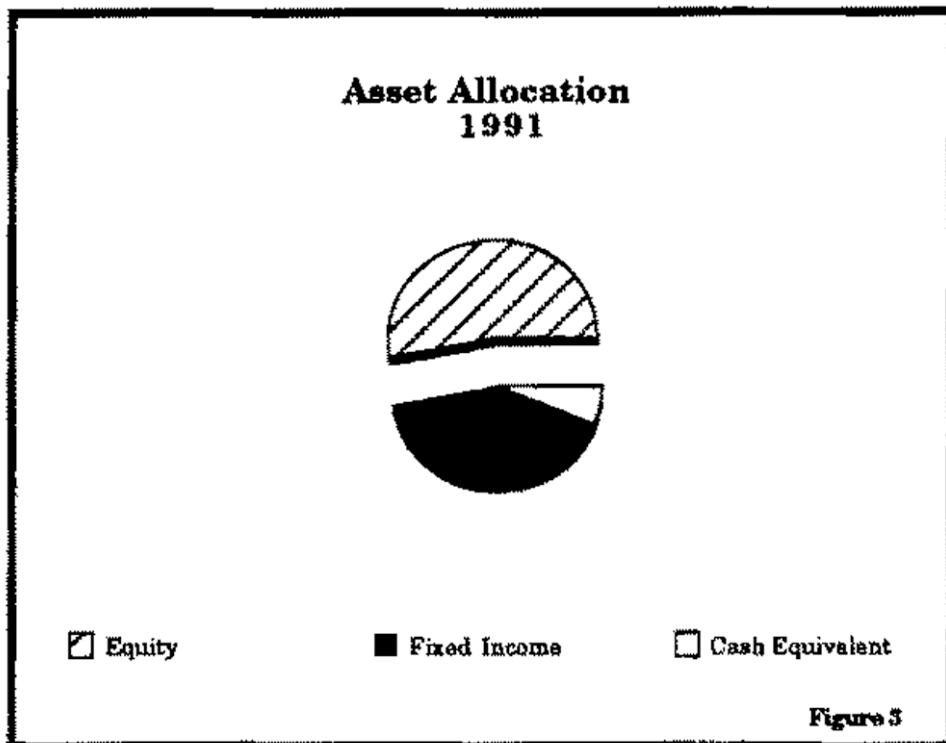
Figure 2

Massachusetts statute establishes the fiduciary obligation of each Retirement Board member. That standard is similar to the ERISA requirements applicable to private pension plans. The Board must discharge its duties for the exclusive purpose of providing benefits to system members and their beneficiaries, with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims and by diversifying the investments of the system so as to minimize the risk of large losses unless under the circumstances it is clearly prudent not to do so.

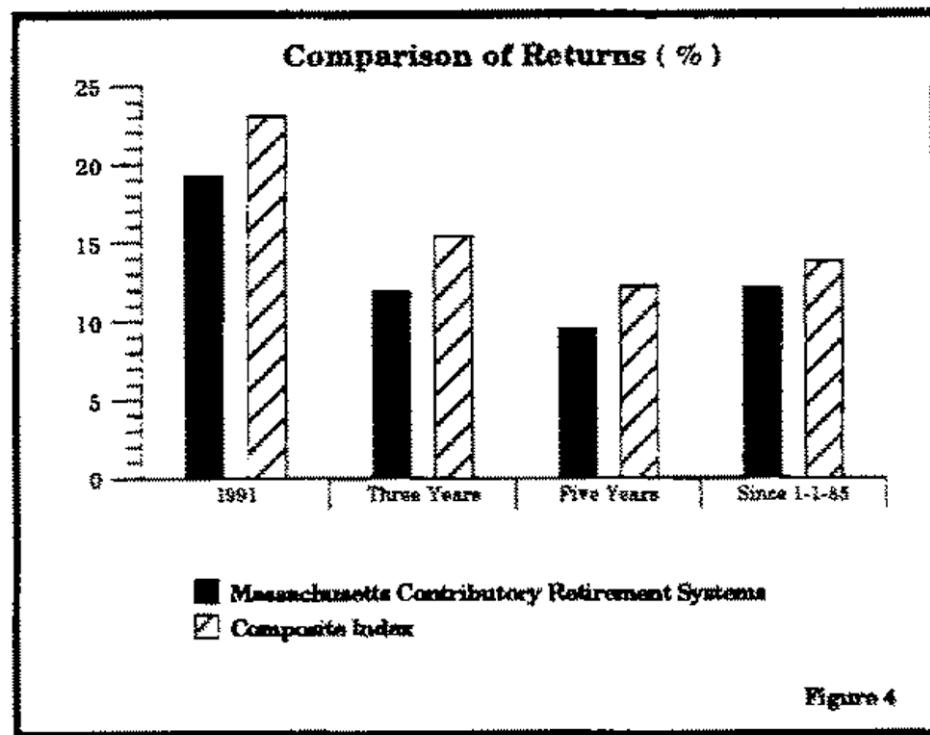
Thus, in addition to other statutory limits, the investment of pension funds by Board members must take place in accordance with fiduciary duty. Failure to comply with that duty could subject individual Board members to personal liability.

In 1991, returns were driven by positive stock and bond markets. The return of individual systems in general was determined by the level of assets committed to stocks and bonds. Generally, those retirement systems with a significant stock portfolio outperformed those where the amount dedicated to bonds was greater than the amount dedicated to stocks.

The allocation to stocks, bonds and cash equivalents for the calendar year ending December 31, 1991 was 53.18%, 40.45%, and 6.37%, respectively. (See Figure 3.)



A comparison of the returns of the Massachusetts Contributory Retirement Systems with standard indices adjusted to reflect the systems' asset allocation provides a measure of relative performance. (See Figure 4.)



The tables that follow contain the following information:

- Table One: Returns for 1991 and Asset Allocation as of December 31, 1991;
- Table Two: Returns for 1985, 1986, 1987, 1988, 1989 and 1990; and
- Table Three: Returns for the past five years, past three years and since January 1, 1985 which is the first year PERA began evaluating returns.

Please note the following:

- The State Employees' and Teachers' Retirement Systems invest in a trust administered by the Office of the State Treasurer (MASTERS Trust). The Office of the Treasurer has reported a return of 20.23%. This return differs from those reported in this booklet because the returns reported in this booklet include those assets of the State Employees' and Teachers' Retirement Systems invested with the PRIT Fund. The asset allocation for the State Employees' and Teachers' Retirement Systems as reported by the Office of the Treasurer is 51.43% in stocks, 44.65% in bonds and 3.92% in cash equivalent investments based on the asset allocation of the MASTERS Trust.
- The asset allocation of the PRIT Fund is 68.88% in stocks, 29.11% in bonds, and 2.00% in cash equivalent investments.
- Mutual funds, real estate, venture capital, leveraged buyouts, limited partnerships, group trust investments and insurance contracts are generally accounted for on a share basis.
- State appropriations received by systems participating in the PRIT Fund have increased investment returns.
- Aetna Life Insurance Company has reimbursed retirement systems for overpayment of management fees with interest. This reimbursement was not reflected in this year's results.
- PERA employs the generally recognized methodology of the Bank Administration Institute in computing returns.
- Prior to the finalization of performance figures, retirement boards are provided with an opportunity to audit PERA's records.

PERA would like to thank the Retirement Board members and staff, investment managers, consultants and custodians for their cooperation without which this study could not have been conducted.

*Annual Report of the*  
**Massachusetts Contributory Retirement Systems**  
*for the year ending December 31, 1991*

Table One

**Annual Return and Asset Allocation**

Page One

<u>Retirement System</u>	1991		Allocations					
	<u>Return</u>	<u>Rank</u>	<u>Equity Percent</u>	<u>Rank</u>	<u>Fixed Income Percent</u>	<u>Rank</u>	<u>Cash Equivalents Percent</u>	<u>Rank</u>
ANDOVER	43.23	1	50.23	39	47.55	56	2.22	84
MALDEN	36.08	2	50.26	38	49.66	53	0.08	103
MARBLEHEAD	35.37	3	53.76	28	47.54	58	-1.30	107
LYNN	33.49	4	56.13	27	44.36	68	-0.49	106
NORTHAMPTON	32.38	5	51.46	35	48.78	54	-0.24	105
NORTH ADAMS	31.57	6	45.44	49	52.58	43	1.98	87
SWAMPSCOTT	30.22	7	43.92	52	55.93	34	0.15	100
LAWRENCE	27.20	8	38.69	65	56.71	32	4.60	69
WELLESLEY	25.78	9	58.33	26	36.90	77	4.77	67
LEXINGTON	24.85	10	51.62	32	44.25	69	4.13	75
PLYMOUTH	24.77	11	46.04	46	49.79	52	4.17	74
FALMOUTH	23.87	12	48.18	42	51.13	48	0.69	97
EVERETT	23.43	13	39.27	63	60.60	21	0.13	101
BROOKLINE	23.33	14	42.37	55	50.70	50	6.93	55
MILFORD	23.20	15	39.74	61	53.84	40	6.42	59
SPRINGFIELD	22.90	16	33.67	74	65.38	11	0.95	95
NEWTON	22.80	17	51.86	31	32.70	80	15.44	16
BEVERLY	22.64	18	52.48	30	45.20	65	2.32	83
MIDDLESEX COUNTY	22.06	19	51.45	36	42.13	71	6.42	58
FALL RIVER	22.01	20	30.37	84	69.66	8	-0.03	104
WALTHAM	21.82	21	39.58	62	56.82	31	3.60	76
CHELSEA	21.55	22	33.13	78	65.11	12	1.76	89
BOSTON	21.53	23	60.99	24	24.32	83	14.69	21
NATICK	21.50	24	45.87	48	45.46	64	8.67	45
NEWBURYPORT	21.03	25	33.58	75	57.50	29	8.92	44
FITCHBURG	21.00	26	32.67	79	52.27	44	15.06	18
NEW BEDFORD	20.95	27	59.75	25	36.04	78	4.21	73

Table One

Annual Return and Asset Allocation

Page Two

<u>Retirement System</u>	1991		Allocations					
	<u>Return</u>	<u>Rank</u>	<u>Equity</u>		<u>Fixed Income</u>		<u>Cash Equivalents</u>	
			<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>
FRAMINGHAM	20.85	28	99.89	1	0.03	89	0.08	102
BELMONT	20.76	29	43.71	54	51.03	49	5.26	63
MASS PORT AUTH	20.51	30	40.30	58	55.21	35	4.49	71
CONCORD	20.41	31	39.82	59	52.23	45	7.95	49
HAVERHILL	20.32	32	47.09	43	45.82	63	7.09	54
BROCKTON	20.22	33	46.76	44	47.38	59	5.86	61
DANVERS	20.13	34	33.41	77	58.91	24	7.68	52
SOMERVILLE	20.13	35	15.57	101	7.12	87	77.31	1
WINTHROP	19.91	36	27.26	89	58.75	25	13.99	22
BLUE HILLS REG VO	19.67	37	24.69	92	64.64	13	10.67	36
AMESBURY	19.50	38	30.14	86	54.87	37	14.99	19
ATTLEBORO	19.32	39	32.48	81	54.37	39	13.15	24
BRISTOL COUNTY	19.18	40	26.30	90	63.14	16	10.56	38
QUINCY	19.07	41	45.14	50	45.86	62	9.00	42
TAUNTON	18.85	42	44.11	51	55.19	36	0.70	96
CHICOPEE	18.74	43	38.26	67	41.24	73	20.50	8
SALEM	18.73	44	34.84	73	56.96	30	8.20	47
GREATER LAWRENCE	18.70	45	25.14	91	62.84	17	12.02	30
WESTFIELD	18.66	46	51.49	34	40.43	74	8.08	48
WINCHESTER	18.58	47	41.71	56	53.38	41	4.91	65
STATE TEACHERS	18.53	48	98.30	6	0.00	104	1.70	91
HOLYOKE	18.50	49	51.10	37	47.55	57	1.35	93
PLYMOUTH COUNTY	18.49	50	14.01	103	74.56	4	11.43	34
WEST SPRINGFIELD	18.34	51	33.45	76	62.23	18	4.32	72
BERKSHIRE COUNTY	18.31	52	8.06	105	88.84	1	3.10	80
GREENFIELD	18.23	53	32.49	80	37.42	76	30.09	3
NORTH ATTLEBORO	18.19	54	29.56	87	57.87	27	12.57	28

Table One

Annual Return and Asset Allocation

Page Three

<u>Retirement System</u>	1991		Allocations					
	<u>Return</u>	<u>Rank</u>	Equity		Fixed Income		Cash Equivalents	
			<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>
GLOUCESTER	18.15	55	49.90	41	48.36	55	1.74	90
STATE	18.10	56	99.82	2	0.00	105	0.18	99
WATERTOWN	18.10	57	45.91	47	46.30	61	7.79	51
HAMPDEN COUNTY	18.05	58	38.96	64	56.51	33	4.53	70
MARLBOROUGH	18.05	59	36.56	70	60.22	22	3.22	79
ADAMS	17.97	60	24.29	94	66.64	9	9.07	41
PEABODY	17.96	61	52.85	29	43.75	70	3.40	77
EASTHAMPTON	17.85	62	18.86	99	76.37	3	4.77	66
PITTSFIELD	17.85	63	35.57	71	51.59	47	12.84	27
ARLINGTON	17.80	64	32.17	82	61.02	19	6.81	56
SOUTHBRIDGE	17.76	65	46.58	45	44.76	66	8.66	46
CLINTON	17.73	66	90.33	17	2.19	88	7.48	53
BARNSTABLE COUNTY	17.72	67	51.49	33	24.82	82	23.69	6
WEBSTER	17.65	68	79.47	21	14.28	86	6.25	60
MASS WATER RESOUR	17.42	69	24.39	93	64.64	14	10.97	35
LEOMINSTER	17.39	70	30.94	83	53.06	42	16.00	14
MELROSE	17.22	71	34.89	72	54.47	38	10.64	37
FRANKLIN COUNTY	17.18	72	27.41	88	63.40	15	9.19	40
STONEHAM	17.15	73	36.68	68	51.73	46	11.59	32
ESSEX COUNTY	16.93	74	43.90	53	40.06	75	16.04	13
BRAINTREE	16.64	75	14.09	102	60.66	20	25.25	4
LOWELL	16.60	76	39.74	60	44.62	67	15.64	15
WORCESTER COUNTY	16.21	77	30.28	85	58.19	26	11.53	33
CAMBRIDGE	16.01	78	65.21	23	21.92	84	12.87	26
WOBURN	15.86	79	16.47	100	70.52	6	13.01	25
MONTAGUE	15.68	80	93.57	15	0.00	97	6.43	57
REVERE	15.65	81	19.12	98	59.26	23	21.62	7

Table One

Annual Return and Asset Allocation

Page Four

<u>Retirement System</u>	1991		Allocations					
	<u>Return</u>	<u>Rank</u>	Equity		Fixed Income		Cash Equivalents	
			<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>
ATHOL	15.63	82	20.82	97	71.39	5	7.79	50
METHUEN	15.52	83	41.02	57	41.38	72	17.60	11
WEYMOUTH	15.48	84	98.03	7	0.00	107	1.97	88
DEDHAM	15.46	85	98.81	4	0.00	90	1.19	94
READING	15.43	86	94.31	14	0.00	101	5.69	62
MILTON	15.42	87	95.25	12	0.00	95	4.75	68
MASS TURNPIKE AUT	15.38	88	1.30	107	80.19	2	18.51	10
NEEDHAM	15.32	89	98.54	5	0.00	98	1.46	92
FAIRHAVEN	15.31	90	90.70	16	0.00	91	9.30	39
MEDFORD	15.31	91	36.60	69	50.07	51	13.33	23
NORTHBRIDGE	15.30	92	99.66	3	0.00	100	0.34	98
MASS HOUSING FINA	15.28	93	95.05	13	0.00	94	4.95	64
HAMPSHIRE COUNTY	15.24	94	38.32	66	46.81	60	14.87	20
SHREWSBURY	15.19	95	98.01	8	0.00	103	1.99	86
GARDNER	15.13	96	88.13	18	0.00	92	11.87	31
WAKEFIELD	15.11	97	97.11	9	0.00	106	2.89	82
WORCESTER	15.11	98	50.20	40	34.42	79	15.38	17
NORFOLK COUNTY	15.08	99	97.08	10	0.00	99	2.92	81
HULL	15.01	100	9.07	104	65.83	10	25.10	5
NORWOOD	14.96	101	21.25	96	69.76	7	8.99	43
SAUGUS	14.94	102	82.94	20	0.00	102	17.06	12
MAYNARD	14.80	103	21.74	95	57.86	28	20.40	9
MINUTEMAN REG VO	14.70	104	87.82	19	0.00	96	12.18	29
PRIM BOARD	14.69	105	68.88	22	29.11	81	2.01	85
HINGHAM	14.23	106	96.75	11	0.00	93	3.25	78
DUKES COUNTY	10.89	107	2.13	106	20.94	85	76.93	2

*Annual Report of the*  
**Massachusetts Contributory Retirement Systems**  
*for the year ending December 31, 1991*

Table Two

**Annual Returns**

Page One

<b>Retirement System</b>	<b>1990</b>		<b>1989</b>		<b>1988</b>		<b>1987</b>		<b>1986</b>		<b>1985</b>	
	<b>Return</b>	<b>Rank</b>										
ADAMS	5.37	19	11.52	93	6.58	104	5.35	3	9.14	102	26.30	14
AMESBURY	5.21	22	14.00	70	10.95	40	0.23	67	10.19	89	18.62	85
ANDOVER	-0.12	80	13.26	79	10.18	59	0.95	60	15.15	36	26.79	13
ARLINGTON	3.11	54	15.81	51	10.23	58	3.11	28	16.64	18	20.13	68
ATHOL	7.91	2	14.09	66	9.00	79	3.72	20	9.82	94	19.90	71
ATTLEBORO	5.27	20	19.11	10	6.92	102	2.48	34	12.91	63	19.87	73
BARNSTABLE COUNTY	-1.32	87	9.15	101	9.14	78	-5.48	104	12.69	64	21.15	57
BELMONT	0.41	75	17.03	22	10.95	41	-2.90	94	9.59	97	23.88	27
BERKSHIRE COUNTY	5.08	25	10.49	96	9.17	77	1.83	46	13.25	57	21.92	52
BEVERLY	1.65	67	10.28	98	10.64	47	-0.71	76	12.97	61	20.71	62
BLUE HILLS REG VO	3.83	41	15.39	55	9.51	72	3.09	29	13.35	54	11.67	104
BOSTON	-2.82	104	20.36	3	12.73	23	-3.78	97	16.12	24	25.65	17
BRAINTREE	2.68	57	13.84	72	10.59	51	5.18	4	16.41	21	22.88	36
BRISTOL COUNTY	6.01	8	15.18	57	7.70	97	-1.20	82	11.43	79	21.05	59
BROCKTON	-0.91	82	11.62	92	8.12	89	1.63	50	12.47	67	22.38	46
BROOKLINE	1.54	69	19.78	8	9.81	64	0.95	61	11.78	76	16.24	97
CAMBRIDGE	0.02	79	10.95	95	7.91	93	-2.86	93	16.69	16	31.96	2
CHELSEA	5.70	13	14.75	60	9.43	74	-1.82	86	13.48	52	24.06	24
CHICOPEE	4.39	34	13.10	83	12.42	27	-0.18	70	10.53	87	20.23	66
CLINTON	-0.18	81	7.65	104	7.81	95	-5.31	103	12.45	68	28.89	4
CONCORD	4.48	32	17.24	19	10.48	53	3.68	21	10.67	86	16.77	96
DANVERS	5.79	10	14.05	68	10.57	52	1.70	49	9.84	92	19.13	84
DEDHAM	-1.64	99	16.43	42	9.98	63	3.61	22	12.67	65	27.93	8
DUKES COUNTY	-1.61	98	8.31	103	12.01	30	-4.55	100	10.68	85	22.68	41
EASTHAMPTON	8.20	1	16.51	40	12.83	21	1.99	42	14.07	46	20.94	60
ESSEX COUNTY	4.56	31	13.07	85	11.87	32	-1.19	81	17.16	12	25.17	19
EVERETT	5.57	16	20.01	5	6.85	103	0.98	58	13.56	49	22.43	45

Table Two

Annual Returns

Page Two

<u>Retirement System</u>	1990		1989		1988		1987		1986		1985	
	<u>Return</u>	<u>Rank</u>										
FAIRHAVEN	-1.44	91	16.59	37	13.29	19	4.19	14	9.68	95	21.53	55
FALL RIVER	6.14	7	18.03	15	6.41	105	1.94	43	15.35	33	25.14	20
FALMOUTH	7.09	3	21.10	1	9.76	66	2.30	38	12.41	70	18.37	88
FITCHBURG	5.24	21	17.14	21	10.40	55	1.32	54	12.41	71	15.35	99
FRAMINGHAM	4.94	28	13.53	74	9.55	70	2.63	33	13.56	50	19.37	81
FRANKLIN COUNTY	5.61	15	11.95	90	9.51	73	-0.24	71	7.73	105	18.34	89
GARDNER	-1.22	86	16.97	25	13.41	15	3.16	26	12.94	62	19.45	80
GLoucester	3.89	40	13.23	80	13.68	7	-0.45	74	16.57	19	25.69	16
GREATER LAWRENCE	3.80	42	11.36	94	8.13	88	1.71	48	7.28	106	7.69	106
GREENFIELD	5.92	9	15.28	56	8.34	84	0.30	66	13.19	58	17.23	93
HAMPDEN COUNTY	2.24	62	15.12	58	11.37	35	2.03	41	13.89	47	20.78	61
HAMPSHIRE COUNTY	4.88	29	14.16	65	8.25	86	4.40	12	11.73	77	17.17	94
HAVERHILL	1.30	71	13.43	76	13.40	16	2.87	31	16.80	14	22.71	40
HINGHAM	-1.32	88	14.69	62	10.89	43	0.95	62	15.32	34	22.28	47
HOLYOKE	3.50	46	13.13	82	12.85	20	4.23	13	14.15	45	27.88	9
HULL	3.23	51	9.39	100	9.79	65	0.57	64	11.36	80	17.28	91
LAWRENCE	3.22	52	19.04	11	5.44	107	-2.18	89	12.24	72	23.67	31
LEOMINSTER	5.19	23	13.93	71	10.03	61	2.47	35	12.21	74	19.64	77
LEXINGTON	2.05	64	13.48	75	9.57	69	-0.91	79	15.67	31	25.47	18
LOWELL	1.39	70	11.92	91	7.32	99	3.74	19	14.50	43	20.21	67
LYNN	0.12	78	17.50	18	11.62	34	-1.95	87	12.20	75	23.66	32
MALDEN	0.21	76	20.33	4	11.98	31	-2.94	95	9.38	99	22.27	48
MARBLEHEAD	0.81	73	18.96	12	10.61	50	-3.24	96	7.88	104	21.90	53
MARLBOROUGH	4.21	37	14.08	67	14.11	2	-0.71	77	9.91	90	21.89	54
MASS HOUSING FINA	-1.67	100	16.84	32	13.80	6	-0.90	78	9.39	98	9.58	105
MASS PORT AUTH	4.32	35	19.14	9	11.34	36	3.93	17	18.68	9	22.18	50
MASS TURNPIKE AUT	6.88	5	14.03	69	10.78	45	3.15	27	16.90	13	22.68	42

Table Two

Annual Returns

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<u>Retirement System</u>	<u>1990</u>		<u>1989</u>		<u>1988</u>		<u>1987</u>		<u>1986</u>		<u>1985</u>	
	<u>Return</u>	<u>Rank</u>										
MASS WATER RESOUR	-1.02	84	14.60	63	10.66	46	6.32	1	5.78	107	N/A	N/A
MAYNARD	-3.33	105	5.94	106	7.72	96	1.10	56	9.91	91	27.80	10
MEDFORD	5.07	26	14.70	61	10.00	62	1.41	51	15.12	37	20.35	64
MELROSE	3.12	53	16.27	45	10.35	56	2.11	39	16.48	20	21.15	58
METHUEN	2.43	59	13.21	81	8.16	87	1.87	45	13.51	51	20.03	70
MIDDLESEX COUNTY	1.83	66	16.33	44	11.16	39	2.06	40	14.89	39	22.92	35
MILFORD	5.77	11	16.95	26	8.05	91	-4.86	102	8.98	103	19.66	76
MILTON	-1.59	97	16.88	29	13.49	12	4.46	9	10.93	82	22.53	43
MINUTEMAN REG VO	-1.55	95	16.90	28	13.87	3	4.49	8	22.05	1	13.17	103
MONTAGUE	-1.34	90	16.39	43	13.56	9	4.86	5	9.15	101	13.28	102
NATICK	3.47	47	17.21	20	10.91	42	-0.09	69	14.56	42	25.80	15
NEEDHAM	-1.55	96	16.84	33	13.83	4	4.67	6	20.76	4	19.58	78
NEW BEDFORD	-3.36	106	10.07	99	8.04	92	-6.31	105	13.68	48	21.48	56
NEWBURYPORT	5.07	27	13.61	73	10.32	57	-1.62	84	9.18	100	20.08	69
NEWTON	-4.57	107	16.02	49	13.60	8	-3.83	98	14.33	44	22.46	44
NORFOLK COUNTY	-1.16	85	16.62	36	13.42	14	4.14	15	17.47	11	23.77	29
NORTH ADAMS	2.31	61	19.79	7	9.31	75	-2.33	90	9.84	93	23.80	28
NORTH ATTLEBORO	3.07	55	15.93	50	9.60	68	0.57	65	12.66	66	17.64	90
NORTHAMPTON	2.24	63	18.12	14	11.28	37	-6.82	106	12.44	69	22.07	51
NORTHBRIDGE	-1.51	94	16.99	24	13.50	10	3.78	18	10.34	88	19.33	82
NORWOOD	6.60	6	17.01	23	11.22	38	2.83	32	13.30	55	17.17	95
PEABODY	3.01	56	13.43	77	12.77	22	-0.41	73	15.77	29	23.23	34
PITTSFIELD	4.79	30	15.12	59	9.54	71	-1.81	85	13.05	60	24.07	23
PLYMOUTH	6.89	4	16.18	46	8.33	85	-2.04	88	15.73	30	28.32	5
PLYMOUTH COUNTY	4.08	39	12.83	89	10.46	54	-1.30	83	16.71	15	24.66	21
PRIM BOARD	-2.27	103	17.90	16	13.43	13	3.25	24	19.94	7	22.76	38
QUINCY	4.09	38	13.43	78	6.36	106	-4.66	101	13.30	56	18.62	86

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Annual Returns

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<u>Retirement System</u>	<u>1990</u>		<u>1989</u>		<u>1988</u>		<u>1987</u>		<u>1986</u>		<u>1985</u>	
	<u>Return</u>	<u>Rank</u>										
READING	-1.67	101	16.91	27	11.71	33	-2.77	91	10.73	84	26.85	12
REVERE	3.71	44	8.79	102	9.26	76	2.40	36	9.66	96	14.44	101
SALEM	3.31	50	12.86	88	7.39	98	2.99	30	14.57	41	19.46	79
SAUGUS	-1.32	89	16.55	39	13.50	11	3.98	16	11.50	78	14.53	100
SHREWSBURY	-1.68	102	16.87	30	13.81	5	4.42	11	19.33	8	17.28	92
SOMERVILLE	0.94	72	13.07	86	10.79	44	-7.08	107	13.14	59	29.94	3
SOUTHBRIDGE	3.55	45	6.77	105	7.82	94	-2.85	92	16.06	25	23.91	26
SPRINGFIELD	5.76	12	19.93	6	8.54	83	-1.18	80	14.91	38	20.45	63
STATE	0.44	74	15.70	53	12.67	24	1.89	44	16.17	23	24.10	22
STATE TEACHERS	1.95	65	15.64	54	12.54	25	0.96	59	16.03	27	24.01	25
STONEHAM	3.41	48	16.13	47	8.63	80	2.37	37	16.38	22	23.69	30
SWAMPSCOTT	2.37	60	18.93	13	14.25	1	-3.90	99	10.87	83	27.94	7
TAUNTON	5.49	18	16.83	34	10.64	48	6.06	2	20.07	5	23.41	33
WAKEFIELD	-1.48	92	16.04	48	13.34	17	4.43	10	21.13	3	19.76	74
WALTHAM	4.46	33	20.97	2	7.18	100	1.40	52	16.65	17	22.20	49
WATERTOWN	0.21	77	13.10	84	12.25	28	1.29	55	12.23	73	19.89	72
WEBSTER	-0.92	83	5.43	107	7.10	101	3.36	23	13.46	53	19.71	75
WELLESLEY	2.66	58	17.64	17	12.46	26	3.23	25	17.91	10	22.73	39
WEST SPRINGFIELD	4.30	36	16.51	41	10.63	49	1.07	57	11.20	81	15.79	98
WESTFIELD	5.11	24	16.86	31	8.11	90	0.77	63	15.59	32	20.29	65
WEYMOUTH	-1.49	93	16.69	35	13.33	18	4.53	7	20.02	6	28.19	6
WINCHESTER	5.51	17	15.75	52	9.62	67	0.01	68	15.27	35	22.77	37
WINTHROP	3.41	49	16.58	38	10.05	60	-0.24	72	14.67	40	18.51	87
WOBURN	5.62	14	13.06	87	8.56	82	-0.50	75	21.69	2	32.44	1
WORCESTER	1.56	68	14.39	64	12.22	29	1.78	47	15.81	28	19.25	83
WORCESTER COUNTY	3.72	43	10.30	97	8.59	81	1.40	53	16.05	26	27.06	11

*Annual Report of the*  
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Table Three

**Past Returns ( Annualized )**

Page One

<b>Retirement System</b>	<b>Five Years</b>		<b>Three Years</b>		<b>Since January 1985</b>	
	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>
FALMOUTH	12.52	1	17.12	5	13.32	9
ANDOVER	12.50	2	17.45	3	14.82	1
MALDEN	12.27	3	17.95	1	13.22	12
WELLESLEY	12.02	4	14.95	16	14.32	2
SWAMPSCOTT	11.72	5	16.61	7	13.78	5
MARBLEHEAD	11.68	6	17.53	2	12.53	24
MASS PORT AUTH	11.63	7	14.42	18	14.07	4
NORTH ADAMS	11.48	8	17.27	4	12.92	18
LYNN	11.44	9	16.23	8	13.22	11
TAUNTON	11.44	10	13.57	25	14.29	3
EASTHAMPTON	11.32	11	14.11	21	13.04	15
CONCORD	11.06	12	13.83	22	11.80	48
EVERETT	11.03	13	16.07	9	12.95	17
WALTHAM	10.84	14	15.47	13	13.22	13
SPRINGFIELD	10.83	15	15.95	11	12.74	20
FITCHBURG	10.78	16	14.26	20	11.66	53
BROOKLINE	10.71	17	14.47	17	11.63	54
FALL RIVER	10.64	18	15.19	14	13.28	10
NORTHAMPTON	10.64	19	16.93	6	12.46	30
PLYMOUTH	10.46	20	15.71	12	13.60	6
MIDDLESEX COUNTY	10.41	21	13.08	31	12.75	19
NORWOOD	10.40	22	12.76	38	11.75	49
ATTLEBORO	10.39	23	14.37	19	12.06	42
NATICK	10.30	24	13.79	24	13.00	16
HOLYOKE	10.29	25	11.53	58	13.20	14
DANVERS	10.26	26	13.17	28	11.43	61
BLUE HILLS REG VO	10.11	27	12.76	37	10.79	83

Table Three

**Past Returns ( Annualized )**

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<u>Retirement System</u>	Five Years		Three Years		Since January 1985	
	<u>Return</u>	<u>Rank</u>	<u>Return</u>	<u>Rank</u>	<u>Return</u>	<u>Rank</u>
FRAMINGHAM	10.11	28	12.92	35	11.88	47
HAVERHILL	10.03	29	11.40	64	12.71	21
LAWRENCE	10.02	30	16.05	10	12.19	39
ATHOL	9.98	31	12.49	40	11.33	64
WEST SPRINGFIELD	9.96	32	12.87	36	10.95	78
MASS TURNPIKE AUT	9.95	33	12.03	48	12.67	23
ARLINGTON	9.84	34	12.05	45	12.21	38
AMESBURY	9.77	35	12.75	39	11.06	72
MARLBOROUGH	9.72	36	11.96	51	11.41	62
WINCHESTER	9.69	37	13.14	29	12.26	36
WESTFIELD	9.69	38	13.38	26	11.98	44
STATE TEACHERS	9.68	39	11.80	53	12.52	25
WINTHROP	9.68	40	13.07	32	11.61	56
BRAINTREE	9.66	41	10.89	72	12.41	32
LEOMINSTER	9.66	42	12.05	46	11.40	63
CHELSEA	9.64	43	13.82	23	12.14	41
MELROSE	9.63	44	12.01	50	12.17	40
MONTAGUE	9.61	45	9.93	81	10.06	94
NEEDHAM	9.59	46	9.87	87	12.51	26
HAMPDEN COUNTY	9.56	47	11.58	57	11.71	51
STATE	9.52	48	11.13	69	12.43	31
CHICOPEE	9.49	49	11.92	52	11.11	69
MILTON	9.49	50	9.91	83	11.48	60
GLOUCESTER	9.48	51	11.60	55	12.67	22
SHREWSBURY	9.48	52	9.80	90	11.93	46
WEYMOUTH	9.47	53	9.90	84	13.45	7
MINUTEMAN REG VO	9.45	54	9.70	95	11.70	52

Table Three

Past Returns ( Annualized )

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<u>Retirement System</u>	Five Years		Three Years		Since January 1985	
	<u>Return</u>	<u>Rank</u>	<u>Return</u>	<u>Rank</u>	<u>Return</u>	<u>Rank</u>
LEXINGTON	9.44	55	13.08	30	12.48	28
GREENFIELD	9.42	56	13.02	34	11.04	73
NEWBURYPORT	9.41	57	13.05	33	10.84	82
MASS WATER RESOUR	9.40	58	10.02	77	N/A	N/A
MILFORD	9.39	59	15.08	15	10.74	85
NORFOLK COUNTY	9.39	60	9.88	86	12.48	29
NORTHBRIDGE	9.37	61	9.93	82	10.88	80
FAIRHAVEN	9.36	62	9.83	88	11.07	71
STONEHAM	9.36	63	12.05	47	12.30	34
SAUGUS	9.30	64	9.75	93	10.35	92
HAMPSHIRE COUNTY	9.29	65	11.33	65	10.73	87
WAKEFIELD	9.27	66	9.58	96	12.35	33
ADAMS	9.25	67	11.50	59	11.52	58
GARDNER	9.25	68	9.98	78	11.18	67
NORTH ATTLEBORO	9.25	69	12.20	44	10.90	79
MEDFORD	9.16	70	11.59	56	11.54	57
BRISTOL COUNTY	9.14	71	13.32	27	11.10	70
PEABODY	9.13	72	11.29	66	11.99	43
PRIM BOARD	9.13	73	9.74	94	12.49	27
BOSTON	9.05	74	12.44	42	12.28	35
SALEM	8.89	75	11.45	61	11.15	68
PITTSFIELD	8.87	76	12.45	41	11.52	59
BELMONT	8.86	77	12.37	43	11.00	76
ESSEX COUNTY	8.85	78	11.40	63	12.22	37
WORCESTER	8.84	79	10.17	76	11.25	65
BERKSHIRE COUNTY	8.83	80	11.16	68	11.24	66
WATERTOWN	8.76	81	10.21	75	10.78	84

Table Three

Past Returns ( Annualized )

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<u>Retirement System</u>	Five Years		Three Years		Since January 1985	
	<u>Return</u>	<u>Rank</u>	<u>Return</u>	<u>Rank</u>	<u>Return</u>	<u>Rank</u>
PLYMOUTH COUNTY	8.69	82	11.64	54	11.97	45
FRANKLIN COUNTY	8.64	83	11.48	60	9.84	95
BEVERLY	8.60	84	11.19	67	10.87	81
GREATER LAWRENCE	8.58	85	11.12	70	8.26	105
DEDHAM	8.54	86	9.76	92	11.72	50
WOBURN	8.37	87	11.43	62	13.38	8
MASS HOUSING FINA	8.35	88	9.82	89	8.68	103
NEWTON	8.23	89	10.78	73	11.03	74
METHUEN	8.10	90	10.24	74	10.50	90
LOWELL	8.06	91	9.78	91	10.62	88
WORCESTER COUNTY	7.92	92	9.96	80	11.62	55
BROCKTON	7.88	93	9.96	79	10.49	91
REVERE	7.86	94	9.27	97	9.03	100
HINCHAM	7.67	95	8.94	100	10.73	86
READING	7.59	96	9.89	85	10.60	89
HULL	7.48	97	9.11	99	9.38	97
QUINCY	7.35	98	12.03	49	9.73	96
SOMERVILLE	7.14	99	11.09	71	10.99	77
SOUTHBRIDGE	6.40	100	9.19	98	10.10	93
WEBSTER	6.35	101	7.12	105	9.17	99
CAMBRIDGE	6.18	102	8.78	101	11.01	75
BARNSTABLE COUNTY	5.52	103	8.23	103	8.63	104
NEW BEDFORD	5.43	104	8.76	102	8.75	102
CLINTON	5.25	105	8.16	104	9.37	98
MAYNARD	5.07	106	5.54	107	8.75	101
DUKES COUNTY	4.79	107	5.72	106	8.01	106

**PART II:**  
**RETURNS BY ASSET CLASS**

The most important decision made by pension fund investors today is the distribution of assets among investment vehicles. The percentage of assets invested in stocks, bonds, venture capital, real estate and other categories is largely responsible for the return achieved.

Fiduciaries must carefully establish an investment plan which sets forth the financial needs of the fund and integrates investment activity as a vital part of meeting those financial needs. Levels of risk must be reviewed and return objectives which reflect the risk levels must be established. At that point an asset allocation strategy designed to achieve the return while maintaining an acceptable level of risk must be developed.

The table that follows contains the following information:

- Table Four: Stock, bond and cash equivalent returns for the calendar year ending December 31, 1991 and for the previous five year period.

On average, fixed income investments returned 14.52% for 1991 and 8.71% over the past five years. Stocks returned 22.71% for 1991 and 9.60% over the past five years. Cash equivalent investments returned 6.31% for 1991 and 7.91% over the past five years. These results are based on the performance of local Retirement Boards and exclude the performance of the State Employees' and Teachers' Retirement Systems. (See Figures 5 and 6 for a comparison of returns versus standard indices.)

	S & P 500 Index	Massachusetts Contributory Retirement Systems
1985	31.57%	46.23%
1986	18.57%	16.28%
1987	5.09%	.55%
1988	16.61%	13.05%
1989	31.68%	22.41%
1990	-3.11%	-7.37%
1991	30.48%	22.71%
Past Five Years	15.33%	9.60%

Figure 6

	Shearson Lehman Govt/Corp Bond Index	Massachusetts Contributory Retirement Systems
1985	21.33%	22.70%
1986	15.59%	16.42%
1987	2.31%	1.01%
1988	7.59%	8.27%
1989	14.23%	12.80%
1990	8.29%	7.49%
1991	16.13%	14.52%
Past Five Years	9.60%	8.71%

Figure 6

*Annual Report of the  
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for the year ending December 31, 1991*

Table Four

**Asset Class Performance**

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<u>Retirement System</u>	Past Year						Past Five Years					
	Equity Return Rank		Fixed Income Return Rank		Cash equivalents Return Rank		Equity Return Rank		Fixed Income Return Rank		Cash equivalents Return Rank	
ADAMS	25.20	65	16.87	21	7.44	36	-0.83	104	10.55	4	7.73	67
AMESBURY	39.77	14	14.88	71	7.67	27	13.51	21	9.46	44	7.83	57
ANDOVER	82.07	1	17.16	15	7.85	20	15.18	9	9.67	29	7.81	59
ARLINGTON	26.22	56	16.12	34	7.43	37	11.01	41	9.12	59	8.58	12
ATHOL	21.69	77	15.24	65	6.81	58	14.51	14	8.94	65	7.91	48
ATTLEBORO	33.51	23	15.73	48	6.00	95	15.93	7	8.72	74	7.24	94
BARNSTABLE COUNTY	26.31	55	15.37	59	5.71	103	3.43	93	5.86	93	7.48	80
BELMONT	31.41	37	16.75	22	6.10	93	10.37	48	9.77	26	7.38	89
BERKSHIRE COUNTY	44.34	10	16.91	19	8.71	3	2.95	94	9.51	41	8.42	17
BEVERLY	32.51	34	14.45	77	7.73	24	6.87	87	8.94	66	8.23	30
BLUE HILLS REG VO	29.80	44	18.25	8	5.90	99	10.75	45	10.37	7	7.15	97
BOSTON	27.77	49	18.29	7	5.55	104	10.00	52	9.94	18	7.43	84
BRAINTREE	34.43	21	16.32	30	6.15	89	12.56	26	8.64	77	7.61	73
BRISTOL COUNTY	33.27	27	16.13	33	6.35	83	9.09	71	9.77	27	8.03	41
BROCKTON	21.30	79	20.28	1	8.60	4	5.72	91	9.87	21	7.42	86
BROOKLINE	32.72	33	18.21	9	7.76	22	14.39	16	9.86	23	8.24	29
CAMBRIDGE	18.42	85	15.10	67	7.01	50	1.68	97	9.10	60	7.23	95
CHELSEA	38.85	15	14.82	72	8.06	13	11.95	35	8.54	79	7.43	85
CHICOPEE	30.54	41	14.47	76	6.72	64	10.22	50	8.87	69	8.41	18
CLINTON	18.01	87	18.69	6	7.45	35	1.49	98	9.87	22	7.71	69
CONCORD	27.91	48	17.43	13	7.13	48	13.71	20	10.30	9	7.55	75
DANVERS	37.65	18	14.57	75	7.23	44	14.44	15	9.67	30	6.97	101
DEDHAM	15.41	98	N/A	N/A	7.59	31	9.78	54	6.33	92	6.35	107
DUKES COUNTY	11.32	107	12.97	86	9.07	2	-0.33	103	7.22	89	9.41	1
EASTHAMPTON	33.02	29	16.08	36	6.35	84	19.06	1	9.92	19	8.19	32
ESSEX COUNTY	24.88	69	16.18	31	6.42	80	10.93	43	8.40	81	7.51	79
EVERETT	38.62	16	15.46	55	9.57	1	16.34	6	8.76	73	9.03	4

Table Four

**Asset Class Performance**

Page Two

<b>Retirement System</b>	<b>Past Year</b>						<b>Past Five Years</b>					
	<b>Equity</b>		<b>Fixed Income</b>		<b>Cash equivalents</b>		<b>Equity</b>		<b>Fixed Income</b>		<b>Cash equivalents</b>	
	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>	<b>Return</b>	<b>Rank</b>
FAIRHAVEN	15.46	95	N/A	N/A	6.14	91	9.42	67	4.86	94	6.47	106
FALL RIVER	41.15	12	15.69	50	7.94	15	16.94	3	8.67	76	8.37	21
FALMOUTH	36.28	20	15.63	53	8.14	11	17.98	2	10.18	10	8.59	10
FITCHBURG	33.34	26	15.91	42	7.62	30	12.30	28	9.95	17	8.88	5
FRAMINGHAM	21.13	80	9.78	89	5.82	101	8.51	78	8.68	75	8.35	23
FRANKLIN COUNTY	25.77	59	15.61	54	5.79	102	7.68	83	9.83	25	6.85	104
GARDNER	15.44	97	N/A	N/A	6.87	55	9.35	68	N/A	N/A	9.26	2
GLoucester	24.80	70	15.76	47	7.66	28	11.39	37	8.27	84	7.82	58
GREATER LAWRENCE	32.78	31	15.13	66	7.73	25	7.20	86	8.52	80	7.73	68
GREENFIELD	33.47	24	16.12	35	6.33	85	12.55	27	9.65	33	7.86	54
HAMPDEN COUNTY	27.41	50	16.03	39	6.43	78	10.87	44	9.47	43	8.02	42
HAMPSHIRE COUNTY	21.53	78	16.75	23	7.30	43	12.22	30	9.52	39	8.37	22
HAVERHILL	29.18	46	15.68	51	6.87	56	12.29	29	9.60	35	7.63	72
HINGHAM	14.41	106	N/A	N/A	6.78	61	6.66	90	7.25	88	8.30	25
HOLYOKE	25.59	61	15.39	58	8.18	8	10.98	42	8.99	63	7.91	49
HULL	25.58	62	15.31	61	5.93	96	-0.29	102	8.80	71	8.82	6
LAWRENCE	49.18	9	16.89	20	7.50	33	8.44	80	9.42	46	7.90	50
LEOMINSTER	30.19	43	14.17	78	7.90	16	10.19	51	9.49	42	8.39	19
LEXINGTON	32.81	30	18.70	5	6.37	82	7.41	85	10.48	5	7.86	55
LOWELL	27.28	51	14.12	80	7.37	39	2.60	95	9.29	55	7.93	47
LYNN	58.31	6	15.35	60	6.59	72	14.39	17	9.26	56	8.38	20
MALDEN	61.56	4	16.63	26	6.79	60	16.44	5	10.00	14	7.38	90
MARBLEHEAD	62.91	3	15.72	49	6.67	67	14.67	13	9.64	34	8.56	14
MARLBOROUGH	25.32	64	14.80	73	8.10	12	7.63	84	8.28	83	7.70	70
MASS HOUSING FINA	15.35	99	N/A	N/A	7.06	49	9.33	69	9.31	51	7.52	78
MASS PORT AUTH	29.53	45	16.18	32	6.72	65	14.72	11	9.67	31	7.99	43
MASS TURNPIKE AUT	56.15	8	17.53	12	6.44	77	10.36	49	10.31	8	7.88	52

Table Four

**Asset Class Performance**

Page Three

<b>Retirement System</b>	<b>Past Year</b>						<b>Past Five Years</b>					
	<b>Equity Return</b>	<b>Rank</b>	<b>Fixed Income Return</b>	<b>Rank</b>	<b>Cash equivalents Return</b>	<b>Rank</b>	<b>Equity Return</b>	<b>Rank</b>	<b>Fixed Income Return</b>	<b>Rank</b>	<b>Cash equivalents Return</b>	<b>Rank</b>
MASS WATER RESOUR	30.89	40	15.31	62	6.68	66	13.10	23	10.06	12	7.58	74
MAYNARD	16.36	90	19.17	3	4.41	107	0.98	100	10.04	13	8.22	31
MEDFORD	23.77	73	14.97	69	6.56	73	9.59	57	9.42	47	7.42	87
MELROSE	25.77	60	16.46	29	7.19	45	11.36	38	9.59	36	8.33	24
METHUEN	18.98	83	16.06	37	5.83	100	6.75	89	9.35	49	6.83	105
MIDDLESEX COUNTY	31.72	35	15.78	45	7.37	40	12.03	34	9.55	38	8.14	34
MILFORD	36.58	19	15.98	41	7.38	38	11.06	40	8.30	82	7.88	53
MILTON	15.30	102	N/A	N/A	6.96	52	9.52	63	N/A	N/A	7.07	99
MINUTEMAN REG VO	15.45	96	N/A	N/A	6.23	86	9.57	60	N/A	N/A	8.14	35
MONTAGUE	15.95	91	N/A	N/A	6.96	53	9.71	55	N/A	N/A	7.29	92
NATICK	33.19	28	13.97	81	7.69	26	14.21	18	8.58	78	7.79	61
NEEDHAM	15.26	104	N/A	N/A	7.86	19	9.54	62	N/A	N/A	8.74	7
NEW BEDFORD	27.23	52	14.96	70	7.31	42	0.31	101	6.80	91	7.94	46
NEWBURYPORT	40.88	13	15.44	56	6.76	62	12.17	32	9.85	24	7.48	81
NEWTON	31.12	38	15.87	43	6.10	94	8.46	79	9.01	62	8.51	15
NORFOLK COUNTY	15.27	103	N/A	N/A	6.81	59	9.43	65	N/A	N/A	7.80	60
NORTH ADAMS	65.14	2	14.72	74	8.17	10	15.84	8	8.95	64	8.62	9
NORTH ATTLEBORO	31.63	36	13.64	84	6.43	79	8.80	77	9.09	61	7.76	65
NORTHAMPTON	59.39	5	13.91	82	7.85	21	14.16	19	8.80	72	9.25	3
NORTHBRIDGE	15.32	101	N/A	N/A	7.87	18	9.09	72	11.51	1	7.77	64
NORWOOD	26.41	54	13.79	83	5.92	98	12.94	24	9.57	37	7.55	76
PEABODY	24.06	71	15.31	63	7.64	29	10.53	47	8.02	85	7.32	91
PITTSFIELD	25.48	63	15.68	52	6.64	68	9.59	58	9.44	45	7.78	63
PLYMOUTH	38.02	17	16.50	27	7.16	47	10.70	46	9.66	32	7.03	100
PLYMOUTH COUNTY	16.47	89	20.14	2	5.93	97	1.23	99	9.73	28	8.05	39
PRIM BOARD	16.90	88	10.59	88	6.76	63	9.89	53	7.99	86	8.30	26
QUINCY	26.14	57	16.05	38	6.49	75	7.72	82	7.55	87	8.51	16

Table Four

## Asset Class Performance

Page Four

<u>Retirement System</u>	Past Year						Past Five Years					
	Equity <u>Return</u>		Fixed Income <u>Return</u>		Cash equivalents <u>Return</u>		Equity <u>Return</u>		Fixed Income <u>Return</u>		Cash equivalents <u>Return</u>	
	<u>Rank</u>			<u>Rank</u>		<u>Rank</u>		<u>Rank</u>		<u>Rank</u>		<u>Rank</u>
READING	15.50	94	N/A	N/A	7.89	17	6.86	88	2.86	95	7.70	71
REVERE	32.76	32	16.48	28	6.64	69	2.59	96	8.91	68	7.48	82
SALEM	27.19	53	16.67	24	7.18	46	8.91	74	8.94	67	8.04	40
SAUGUS	15.58	92	N/A	N/A	5.10	106	9.43	66	N/A	N/A	6.86	103
SHREWSBURY	15.34	100	N/A	N/A	6.96	54	9.52	64	N/A	N/A	8.25	28
SOMERVILLE	28.66	47	12.18	87	6.15	90	11.86	36	7.09	90	8.10	37
SOUTHBRIDGE	24.01	72	16.65	25	7.55	32	-8.46	107	9.30	54	7.40	88
SPRINGFIELD	42.04	11	15.26	64	8.18	9	14.71	12	9.35	50	7.97	44
STATE	18.25	86	N/A	N/A	5.30	105	9.58	59	N/A	N/A	7.21	96
STATE TEACHERS	18.65	84	N/A	N/A	6.56	74	9.61	56	N/A	N/A	7.28	93
STONEHAM	21.79	76	16.96	18	6.12	92	9.03	73	9.96	16	7.45	83
SWAMPSCOTT	57.67	7	17.57	11	6.41	81	16.58	4	10.00	15	7.74	66
TAUNTON	23.69	75	17.18	14	6.97	51	12.74	25	10.14	11	7.86	56
WAKEFIELD	15.26	105	N/A	N/A	6.86	57	9.32	70	N/A	N/A	7.10	98
WALTHAM	33.46	25	16.01	40	6.60	71	14.90	10	8.86	70	8.11	36
WATERTOWN	25.06	67	15.77	46	8.28	6	8.88	75	9.31	52	8.30	27
WEBSTER	19.05	82	14.14	79	6.46	76	-1.99	106	11.25	2	7.90	51
WELLESLEY	34.13	22	18.72	4	8.43	5	12.06	33	10.40	6	8.59	11
WEST SPRINGFIELD	30.49	42	15.00	68	7.47	34	13.17	22	9.31	53	8.70	8
WESTFIELD	24.95	68	17.08	16	7.36	41	12.22	31	9.36	48	7.53	77
WEYMOUTH	15.51	93	N/A	N/A	8.20	7	9.55	61	N/A	N/A	7.79	62
WINCHESTER	25.19	66	15.87	44	7.74	23	8.42	81	9.90	20	8.08	38
WINTHROP	31.01	39	17.61	10	6.63	70	11.27	39	9.52	40	8.15	33
WOBURN	23.73	74	16.99	17	8.01	14	5.23	92	9.24	57	6.91	102
WORCESTER	20.42	81	13.02	85	6.19	87	8.83	76	9.24	58	7.95	45
WORCESTER COUNTY	25.86	58	15.42	57	6.16	88	-1.91	105	10.58	3	8.57	13

### **PART III:**

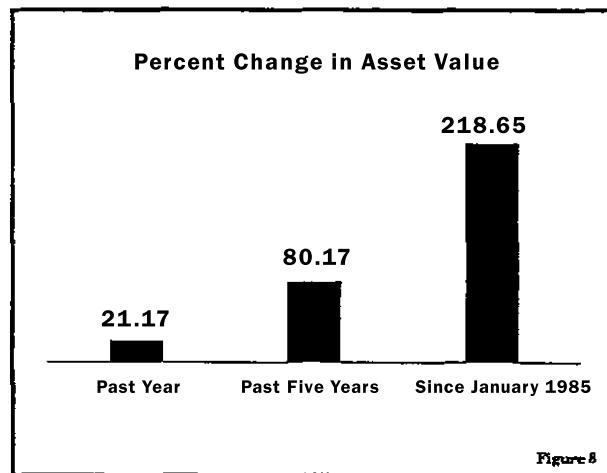
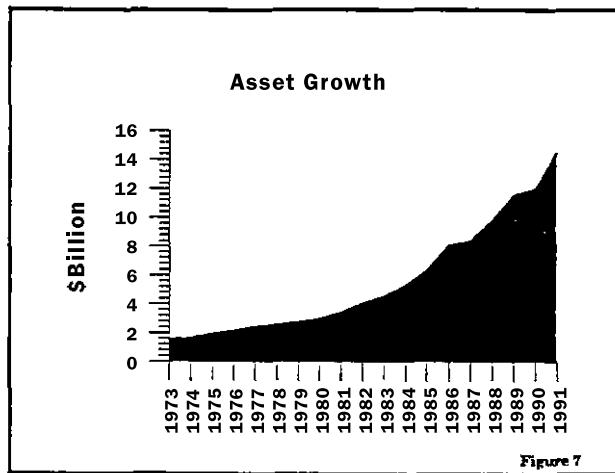
#### **ASSET GROWTH AND EMPLOYEE AND EMPLOYER CONTRIBUTIONS**

In accordance with Chapter 32 of the General Laws, PERA establishes the annual pension appropriation which must be contributed by each county, city and town. These funds are deposited in the accounts of the retirement system and used to pay benefits. Each member of the system also contributes a percentage of salary to the system. Upon retirement, an individual receives a retirement allowance consisting of two components, an annuity based on contributions and a pension paid from the employer's appropriation.

The law authorizes additional employer contributions as a method of reducing unfunded liabilities. In addition, "excess earnings", the yield on investments above the amount credited to employee annuity accounts, are deposited in the pension reserve fund.

These are the primary sources of the funds which are invested by Retirement Boards. It is the goal of the investment activity to reduce the unfunded liabilities of the retirement systems.

Since 1973, significant asset growth has taken place throughout the retirement systems. On 12/31/73, assets totalled \$1.6 billion. As of 12/31/91, that total was \$14.6 billion. Assets should continue to grow in the future due to increased contributions and investment return. (See Figures 7 and 8.)



The rate of growth in assets and the funding status of the retirement system is intimately linked. In order for asset growth to dampen the impact of an increasing liability, the expected return of 8% per year must be achieved. In the 1985-1991 period, 106 of 106 systems exceeded an 8% return. The average return for 1991 has been 19.28%, the average return for three years has been 11.92%, the average return for five years has been 9.50%, and the average return for seven years, which is when PERA began evaluating returns, has been 12.12%.

The table that follows contains the assets of each of the retirement systems as of December 31, 1991 as well as the growth in assets over the past year, past five years, and past seven years, the longest timeframe for which data is available.

As of 12/31/91, the five systems with the largest asset base were Teachers' Retirement System, State Employees' Retirement System, Boston Retirement System, Middlesex County Retirement System, and Worcester Retirement System. In 1991, asset growth was greatest in Marblehead Retirement System, Massachusetts Water Resources Retirement System, Webster Retirement System, Andover Retirement System, and Saugus Retirement System. In the last seven years, the most significant asset growth took place in Minuteman Regional Vocational Employees' Retirement System, Wellesley Retirement System, State Employees' Retirement System, Andover Retirement System, and Falmouth Retirement System.

Asset growth is attributable to several factors including employee and employer contributions. However, growth in the market value of assets due to investment return represents a major source of increased financial stability in each retirement system.

*Annual Report of the  
Massachusetts Contributory Retirement Systems  
for the year ending December 31, 1991*

Table Five

**Asset Growth**

Page One

<b>Retirement System</b>					<b>Percent Change.....</b>					
	<b>December 31, 1991</b>		<b>Total Asset Value</b>	<b>Market</b>	<b>Past Year</b>		<b>Past Five Years</b>		<b>Since January 1, 1985</b>	
	<b>Market</b>	<b>Rank</b>			<b>Percent</b>	<b>Rank</b>	<b>Percent</b>	<b>Rank</b>	<b>Percent</b>	<b>Rank</b>
ADAMS	6,697,607.68	94			19.80	67	94.01	29	240.03	10
AMESBURY	11,718,051.23	87			24.46	28	101.10	17	241.38	9
ANDOVER	22,908,526.39	58			44.16	4	137.76	3	285.59	5
ARLINGTON	49,433,708.14	29			18.80	74	69.84	71	154.07	73
ATHOL	4,709,047.05	100			10.41	104	98.46	23	154.05	74
ATTLEBORO	19,345,556.85	68			20.58	54	88.30	40	183.51	39
BARNSTABLE COUNTY	81,089,673.94	17			26.27	20	86.14	46	173.61	47
BELMONT	22,272,958.48	60			14.37	97	60.07	88	115.80	95
BERKSHIRE COUNTY	24,281,319.89	57			22.14	43	86.65	43	183.19	40
BEVERLY	24,421,495.57	56			11.58	103	58.84	90	141.43	80
BLUE HILLS REG VO	2,998,797.84	105			16.54	92	68.00	75	134.74	86
BOSTON	1,183,239,111.42	4			24.79	24	69.57	73	179.23	43
BRAINTREE	35,622,486.68	41			10.28	105	100.63	20	231.23	16
BRISTOL COUNTY	76,358,901.16	19			21.46	45	80.88	60	172.86	49
BROCKTON	67,479,998.33	20			14.58	96	47.72	100	114.96	97
BROOKLINE	63,988,345.92	21			24.56	27	83.11	56	157.22	68
CAMBRIDGE	132,878,699.95	8			20.57	55	50.61	98	155.84	71
CHELSEA	19,856,170.04	66			14.77	95	63.37	83	137.12	84
CHICOPEE	42,254,477.38	34			18.74	77	83.68	54	119.09	94
CLINTON	5,485,315.39	98			21.91	44	40.88	102	119.67	93
CONCORD	16,053,523.46	74			24.72	26	94.92	27	167.35	57
DANVERS	27,514,617.93	54			20.77	52	78.73	63	140.14	83
DEDHAM	13,905,623.20	82			17.07	87	62.67	84	158.83	65
DUKES COUNTY	6,611,505.03	95			22.19	42	93.51	31	166.14	58
EASTHAMPTON	8,576,372.60	93			20.26	62	128.29	5	267.23	7
ESSEX COUNTY	60,999,774.66	22			18.84	73	75.78	67	157.37	67
EVERETT	28,387,990.24	51			17.39	85	77.25	65	115.16	96

Table Five

**Asset Growth**

Page Two

<u>Retirement System</u>	December 31, 1991				Percent Change			
	Total Asset Value		<u>Market</u>	<u>Rank</u>	Past Year		<u>Past Five Years</u>	<u>Since January 1, 1985</u>
	<u>Market</u>	<u>Rank</u>			<u>Percent</u>	<u>Rank</u>		
FAIRHAVEN	6,446,608.51	96			19.12	71	86.06	48
FALL RIVER	80,085,305.57	18			24.87	23	98.13	25
FALMOUTH	18,797,426.64	69			30.60	10	182.60	1
FITCHEBURG	30,435,496.02	46			22.70	37	97.61	26
FRAMINGHAM	46,558,136.01	33			30.50	11	93.04	32
FRANKLIN COUNTY	14,415,604.30	80			20.46	59	84.89	51
GARDNER	10,395,382.26	90			16.88	90	67.23	76
GLOUCESTER	20,560,097.69	63			21.15	47	83.08	57
GREATER LAWRENCE	2,913,981.95	106			23.61	32	16.66	106
GREENFIELD	10,838,099.35	88			24.79	25	99.18	21
HAMPDEN COUNTY	60,778,649.12	23			23.22	34	85.06	50
HAMPSHIRE COUNTY	38,086,256.91	38			21.03	49	86.10	47
HAVERHILL	46,737,851.36	32			29.35	13	104.06	14
HINGHAM	13,802,394.65	84			19.54	69	63.42	82
HOLYOKE	47,677,094.59	30			17.81	82	57.29	92
HULL	5,693,289.59	97			17.03	88	56.62	95
LAWRENCE	46,991,721.26	31			30.77	9	89.60	37
LEOMINSTER	20,380,002.22	64			23.54	33	101.13	16
LEXINGTON	28,511,577.24	50			26.96	18	88.43	39
LOWELL	53,312,092.97	26			19.25	70	61.30	85
LYNN	81,523,377.98	16			22.62	38	78.36	64
MALDEN	34,017,579.86	42			33.42	6	72.93	68
MARBLEHEAD	21,241,867.58	62			59.37	1	93.76	30
MARLBOROUGH	17,785,483.42	72			27.74	15	84.61	52
MASS HOUSING FINA	14,006,169.44	81			19.90	66	115.50	7
MASS PORT AUTH	105,508,130.30	12			24.25	29	106.84	11
MASS TURNPIKE AUT	83,090,519.43	15			16.56	91	101.81	15

Table Five

## Asset Growth

Page Three

<u>Retirement System</u>	<u>December 31, 1991</u> <u>Total Asset Value</u>			<u>Percent Change</u>					
	<u>Market</u>	<u>Rank</u>	<u>Past Year</u>		<u>Past Five Years</u>		<u>Since January 1, 1985</u>		
			<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>	<u>Percent</u>	<u>Rank</u>	
MASS WATER RESOUR	15,169,320.14	76	49.82	2	N/A	N/A	N/A	N/A	N/A
MAYNARD	4,667,715.26	101	18.60	79	44.52	101	108.89	102	
MEDFORD	40,989,635.13	35	16.98	89	80.13	61	169.10	53	
MELROSE	17,792,934.03	71	4.91	107	55.51	96	112.54	101	
METHUEN	22,417,445.42	59	22.46	41	127.03	6	238.67	11	
MIDDLESEX COUNTY	238,070,154.79	5	28.95	14	98.39	24	195.79	34	
MILFORD	14,830,399.06	78	26.16	21	98.49	22	219.08	18	
MILTON	20,269,749.57	65	20.31	61	71.90	70	156.74	69	
MINUTEMAN REG VO	2,567,082.51	107	20.92	50	132.52	4	375.34	2	
MONTAGUE	4,054,216.26	103	18.78	75	92.47	34	150.86	76	
NATICK	28,953,202.98	49	22.95	35	108.85	9	201.19	32	
NEEDHAM	33,537,681.11	43	14.10	99	55.44	97	233.08	14	
NEW BEDFORD	57,483,973.32	25	25.30	22	33.19	105	114.44	98	
NEWBURYPORT	10,686,930.92	89	24.08	30	105.26	12	212.92	24	
NEWTON	102,820,666.78	13	20.02	65	36.45	104	95.38	106	
NORFOLK COUNTY	138,106,206.23	7	22.55	39	90.37	36	170.85	51	
NORTH ADAMS	12,118,876.30	86	29.97	12	100.92	19	202.80	29	
NORTH ATTLEBORO	13,164,432.09	85	20.91	51	101.05	18	215.11	22	
NORTHAMPTON	15,450,118.41	75	31.09	8	86.61	44	160.57	62	
NORTHBRIDGE	3,652,636.48	104	6.38	106	47.81	99	113.75	99	
NORWOOD	38,592,508.23	37	18.03	81	104.08	13	215.45	21	
PEABODY	40,046,455.63	36	21.06	48	86.41	45	182.57	41	
PITTSFIELD	36,120,368.80	39	20.51	58	58.10	91	134.26	87	
PLYMOUTH	28,363,471.08	52	31.11	7	108.35	10	231.97	15	
PLYMOUTH COUNTY	131,615,149.29	9	22.72	36	90.61	35	205.58	27	
PRIM BOARD	3,373,383,511.68	3	14.00	100	87.20	42	581.76	1	
QUINCY	90,136,125.80	14	21.24	46	65.33	79	141.01	81	

Table Five

**Asset Growth**

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<u>Retirement System</u>	December 31, 1991		Percent Change					
	Total Asset Value		Past Year		Past Five Years		Since January 1, 1985	
	Market	Rank	Percent	Rank	Percent	Rank	Percent	Rank
READING	18,217,448.20	70	17.81	83	76.56	66	158.06	66
REVERE	29,788,844.02	47	18.31	80	87.72	41	167.53	55
SALEM	33,394,697.25	44	20.24	63	64.21	81	159.73	64
SAUGUS	13,897,817.43	83	43.46	5	88.45	38	161.24	60
SHREWSBURY	14,848,557.43	77	17.21	86	72.54	69	173.51	48
SOMERVILLE	49,789,050.51	28	22.51	40	37.79	103	141.82	79
SOUTHBRIDGE	5,381,806.67	99	18.61	78	57.15	93	102.83	104
SPRINGFIELD	129,926,050.86	10	17.60	84	82.51	59	156.27	70
STATE	4,674,393,865.22	2	20.68	53	85.24	49	285.77	4
STATE TEACHERS	4,778,209,550.34	1	20.40	60	78.94	62	222.32	17
STONEHAM	16,871,551.36	73	19.77	68	65.68	78	160.94	61
SWAMPSCOTT	10,203,556.79	91	27.49	16	92.79	33	178.59	44
TAUNTON	35,784,985.08	40	20.08	64	83.14	55	200.62	33
WAKEFIELD	19,625,268.49	67	15.82	93	66.03	77	136.65	85
WALTHAM	59,484,064.85	24	18.76	76	83.06	58	189.44	37
WATERTOWN	28,047,648.50	53	20.53	56	84.51	53	167.51	56
WEBSTER	4,647,169.94	102	46.30	3	60.95	86	113.36	100
WELLESLEY	50,865,870.77	27	26.82	19	165.70	2	366.54	3
WEST SPRINGFIELD	14,696,591.28	79	13.48	101	69.58	72	95.64	105
WESTFIELD	32,990,692.60	45	23.90	31	111.69	8	233.94	13
WEYMOUTH	29,356,055.81	48	11.63	102	57.14	94	130.22	89
WINCHESTER	21,698,240.73	61	20.52	57	94.43	28	202.99	28
WINTHROP	9,152,747.21	92	26.99	17	60.91	87	127.34	90
WOBURN	24,471,378.44	55	15.38	94	59.86	89	169.92	52
WORCESTER	157,547,612.36	6	14.22	98	69.48	74	148.98	77
WORCESTER COUNTY	118,931,217.23	11	18.85	72	64.53	80	160.57	63
MASS. RETIREMENT SYSTEMS	14,563,579,647.66		21.17		80.17		218.65	

## **PART IV:**

### ***COMMISSIONS, TRADING VOLUME, FEES, AND TURNOVER***

The intent of the next part of the report is to focus attention on the expense involved in the trading activity of the Boards. Every purchase or sale of a security by a retirement system is executed by a brokerage firm. The broker's role is to match buyers and sellers. The broker receives a commission. A brokerage firm also consummate trades through the use of the firm's own capital or by trading the firm's own holdings from the firm's inventory. In such instances, the firm receives compensation through changes in the market value of the security involved and no explicit commission is received. Table Six contains information on the brokerage firms which have executed trades for the retirement systems with over one million dollars in volume (domestic transactions only).

In addition to trading, some brokers provide clients with advice relating to stock and bond selections. That advice may cover the full spectrum of investment options or may focus on one category. In most systems, however, the responsibility for day to day management of the portfolio is delegated to professional money managers. PERA requires that such managers meet strict standards. In addition, custody costs and consultant fees are incurred in the normal course of investing by retirement boards. These costs may be paid from investment earnings or paid from appropriations. The return of those systems paying expenses from earnings is reduced by such costs. However, nationwide and in Massachusetts the use of investment earnings is the most common method of paying for these costs. Table Seven contains the gross returns of the retirement systems and the net returns of the retirement systems after expenses have been paid from earnings. Following the gross and net returns are the amounts paid for management advice, custody costs and consultant fees. In evaluating these costs, PERA is seeking to make systems aware of the need to consider these expenses.

The same is true in analyzing the turnover in a portfolio. Turnover rates must be judged based on the performance of the portfolio. High turnover rates increase trading costs, consequently, a high level of buying and selling must be justified by performance. As a general principal, such turnover does not enhance performance, however, each manager must be assessed on his or her performance. Table Eight contains turnover rates of the stock and bond portfolios of the retirement systems.

Please note the following:

- The administrative expenses of the PRIT Fund have been paid from the earnings of the PRIT Fund unlike the retirement systems which pay these expenses from budgeted funds. This will lower the net return reported by the PRIT Fund. This will additionally lower the net return of the retirement systems investing in the PRIT Fund.
  
- The administrative expenses of the PRIT Fund have been categorized as management fees. The adjusted fees of the PRIT Fund, which exclude administrative expenses, represent .52% of the portfolio.

- The Office of the State Treasurer administers the MASTERS Trust for the State Employees' and Teachers' Retirement Systems. The gross return as reported by the Office of the Treasurer was 20.23% and the net return 19.99% a difference of 24 basis points. These returns differ from those reported for the State Employees' and Teachers' Retirement Systems because they exclude the funds invested by these retirement systems with the PRIT Fund. In addition, the MASTERS Trust pays for administrative and other operating expenses, such as foreign taxes paid, from earnings which is reflected in a lower net return for the State Employees' and Teachers' Retirement Systems than if they had not been paid from earnings. Retirement systems generally do not pay these costs from earnings.
- The administrative expenses and other operating expenses, such as foreign taxes paid, of the MASTERS Trust have been categorized as management fees for the State Employees' and Teachers' Retirement Systems. The adjusted fees of the State Employees' and Teachers' Retirement Systems, adjusted for the administrative and other operating expenses of the PRIT Fund and the MASTERS Trust, represent .32% and .29% of the portfolios, respectively.
- Management fees for those retirement systems which use BayBanks and U.S. Trust as manager and custodian include custody fees.
- Information regarding expenses was derived from the records of the retirement systems, the PRIT Fund and the Office of the Treasurer.
- With respect to systems investing in shares of mutual funds, limited partnerships, group trusts, etc., the turnover data reflects the purchase and redemption of units and does not reflect the buying and selling of stocks and bonds.

Statewide in 1991, the gross return was 19.28% and the net return 18.85%, a difference of 43 basis points. Statewide, \$39,090,361.18 was paid in management fees, \$6,326,944.90 was paid in custody fees, and \$986,338.15 was paid in consulting fees (adjusted to exclude administrative and operating costs.)

*Annual Report of the  
Massachusetts Contributory Retirement Systems  
for the year ending December 31, 1991*

**Commissions and Trading Volume for Calendar Year 1991**

Table Six

**Excluding State Employees and Teachers Retirement Systems**

**Page One**

<b>Broker</b>	<b>Stock \$ Volume</b>	<b>Stock \$ Commissions</b>	<b>Commission Per Share</b>	<b>Fixed Income \$ Volume</b>	<b>Fixed Income \$ Commissions</b>
A G EDWARDS AND SONS	11,733,230.60	16,146.05	0.07	16,188,002.81	312.50
ABEL NOSER	7,233,316.86	12,420.00	0.06	0.00	0.00
ABN CORP	1,078,987.35	0.00	0.00	0.00	0.00
ADAMS, HARKNESS AND	5,408,874.08	8,304.00	0.06	2,317,157.00	0.00
ADVEST, INC.	767,919.00	1,178.00	0.06	1,032,250.00	0.00
ALEX, BROWN AND SONS	54,879,839.34	91,750.97	0.07	18,078,711.90	0.00
ARBOR TRADING GROUP	0.00	0.00	0.00	34,379,521.80	256.25
ASIA EQUITY	2,110,519.81	14,250.27	0.01	0.00	0.00
AUBREY G. LANGSTON	0.00	0.00	0.00	11,582,998.41	0.00
AUTRANET, INC	38,655,721.67	67,039.00	0.06	10,348,362.23	1,368.74
BANK JULIUS BAER	1,004,999.24	0.00	0.00	0.00	0.00
BANK LIECHTENSTEIN	2,370,681.57	2,540.00	0.07	0.00	0.00
BANK OF BOSTON	0.00	0.00	0.00	1,008,352.34	0.00
BANK OF NEW ENGLAND,	148,456.44	147.00	0.07	1,442,076.92	0.00
BARCLAYS, DE ZOETE, WE	420,791.36	2,378.44	0.02	6,642,937.52	0.00
BARING SECS. LTD, JAP	2,343,889.51	17,744.88	0.02	100,000.00	0.00
BARING SECS., NY	1,840,104.91	13,475.17	0.04	0.00	0.00
BARRINGTON TRADING	0.00	0.00	0.00	8,495,441.88	0.00
BEAR STEARNS AND CO.	67,762,081.65	77,887.00	0.05	78,112,517.78	0.00
BERNSTEIN & CO	21,371,638.60	44,856.90	0.07	0.00	0.00
BERSAK & CO LTD.	0.00	0.00	0.00	1,110,613.78	0.00
BHC SECURITIES INC.	1,082,941.67	2,377.00	0.09	0.00	0.00
BK FINC CLEARING	963,826.37	1,736.00	0.07	12,728,531.87	0.00
BLAIR, WILLIAM, & COM	2,618,970.00	5,070.00	0.06	0.00	0.00
BOSTON COMPANY	7,351,911.26	10,965.00	0.07	0.00	0.00
BOSTON INSTITUTIONAL	1,937,102.74	3,860.00	0.07	7,459,827.00	0.00
BRAD PERRY	1,356,122.93	0.00	0.00	0.00	0.00

**Commissions and Trading Volume for Calendar Year 1991**  
**Excluding State Employees and Teachers Retirement Systems**

Table Six

Page Two

<u>Broker</u>	<u>Stock \$ Volume</u>	<u>Stock \$ Commissions</u>	<u>Commission Per Share</u>	<u>Fixed Income \$ Volume</u>	<u>Fixed Income \$ Commissions</u>
BRICK SECURITY	3,421,056.73	5,877.00	0.08	0.00	0.00
BRIDGE TRADING CO	7,494,200.32	11,624.00	0.06	0.00	0.00
BROADCOURT SECURITIE	91,166,678.13	185,053.20	0.06	1,362,847.50	0.00
BROWN BROTHERS HARRI	2,032,676.63	4,981.60	0.07	8,249,548.96	300.00
BT SECURITIES CORP	0.00	0.00	0.00	2,260,900.00	37.50
BURNS FRY HOARE GOVE	1,106,984.82	3,348.73	0.07	0.00	0.00
CANTELLA & CO.	11,879,444.95	14,531.60	0.05	504,375.00	0.00
CANTOR FITZGERALD	36,790,099.73	14,273.00	0.03	0.00	0.00
CAPITAL INST'L SVCS	1,057,113.34	1,380.00	0.06	141,068,510.71	23,510.65
CARMCLEY CORPORATION	0.00	0.00	0.00	3,403,093.75	0.00
CARNEGIE, STOCKHOLM	1,874,953.02	1,662.00	0.06	7,405,791.57	0.00
CARROLL MCENTEE + MC	0.00	0.00	0.00	37,330,630.05	0.00
CHASE MANHATTAN BANK	0.00	0.00	0.00	30,142,558.27	0.00
CITIBANK	0.00	0.00	0.00	10,436,678.35	0.00
CITICORP SECURITIES	0.00	0.00	0.00	8,488,036.23	0.00
CL GLOBAL SECURITIES	3,923,580.49	4,811.00	0.05	0.00	0.00
COUNTY NAT WEST	9,923,448.30	17,890.37	0.03	1,638,312.10	0.00
COWEN & CO	25,549,221.03	28,097.74	0.06	8,250,517.07	0.00
CRAIGIE INC	0.00	0.00	0.00	1,506,052.25	0.00
CREDIT LYONNAIS	4,341,828.62	6,650.51	0.06	0.00	0.00
CRT GOVT SECURITIES	0.00	0.00	0.00	6,704,903.38	0.00
CYRUS J LAWRENCE	18,066,421.16	32,932.75	0.06	996,370.00	0.00
DAIWA SECURITIES	4,611,802.00	6,740.00	0.06	0.00	0.00
DAVIS,MENDEL & REGEN	2,073,081.71	5,833.50	0.09	0.00	0.00
DEAN WITTER REYNOLDS	21,298,412.09	33,719.98	0.06	33,792,988.60	0.00
DEUTSCHE BANK	1,386,624.34	700.00	0.07	0.00	0.00
DILLON SECURITIES	0.00	0.00	0.00	5,345,600.00	0.00

### Commissions and Trading Volume for Calendar Year 1991

Table Six

Excluding State Employees and Teachers Retirement Systems

Page Three

<u>Broker</u>	<u>Stock \$ Volume</u>	<u>Stock \$ Commissions</u>	<u>Commission Per Share</u>	<u>Fixed Income \$ Volume</u>	<u>Fixed Income \$ Commissions</u>
DILLON, READ & CO	5,218,776.43	8,674.00	0.07	29,551,384.48	0.00
DISCOUNT COOP OF NY	0.00	0.00	0.00	17,468,598.23	0.00
DISCOUNT CORP OF NEW	0.00	0.00	0.00	2,475,518.25	0.00
DLJ FIXED INCOME	230,072.50	0.00	0.00	25,008,395.58	0.00
DOMINIC & DOMINIC	1,361,312.63	3,036.00	0.06	272,894.53	0.00
DONALDSON LUFKIN & J	35,861,840.70	51,172.00	0.07	112,317,800.99	0.00
E.J. QUINN & CO.	0.00	0.00	0.00	4,152,290.62	0.00
ENOS INVESTMENTS	13,548,843.22	14,545.00	0.07	10,170,386.49	0.00
ERNST & CO	11,355,832.60	18,430.00	0.07	0.00	0.00
EXECUTION SERVICES	34,881,477.77	22,609.37	0.03	9,621,285.51	0.00
FACTSET DATA SYSTEM	8,028,468.62	11,603.00	0.06	0.00	0.00
FAHNESTOCK & CO	1,230,089.63	2,075.00	0.07	301,039.06	0.00
FANEUIL HALL SECURIT	7,700,731.65	18,256.00	0.05	2,032,810.93	0.00
FBOST-FIRST BOSTON C	0.00	0.00	0.00	5,169,794.53	0.00
FIDELITY BROKERAGE S	14,174,114.36	33,016.00	0.08	0.00	0.00
FINANCIAL CLEARING S	36,802,218.36	77,921.18	0.07	1,889,718.00	0.00
FIRST ALBANY	12,664,590.58	18,730.00	0.08	50,664,181.23	3.00
FIRST BOSTON CORP	32,975,916.02	47,290.25	0.06	177,231,084.97	0.00
FIRST CHICAGO	0.00	0.00	0.00	21,309,633.88	0.00
FIRST MANHATTAN CO	2,232,579.14	4,166.00	0.06	0.00	0.00
FIRST TULSA	12,224,761.13	15,979.50	0.07	2,345,442.68	0.00
FOX-PITT, KELTON, IN	1,198,021.47	1,740.00	0.07	0.00	0.00
FREEMAN SECURITIES	0.00	0.00	0.00	5,640,922.70	0.00
FUJI GOVERNMENT SECU	0.00	0.00	0.00	1,268,093.79	0.00
FURMAN, SELZ, MAGERD	3,550,134.02	4,534.00	0.06	746,250.00	0.00
GERARD KLAVER MADISO	2,040,019.28	4,683.00	0.06	0.00	0.00
GOLDMAN, SACHS AND C	70,757,803.92	58,734.03	0.06	162,973,596.93	2,701.68

**Commissions and Trading Volume for Calendar Year 1991**  
**Excluding State Employees and Teachers Retirement Systems**

Table Six

Page Four

<u>Broker</u>	<u>Stock \$ Volume</u>	<u>Stock \$ Commissions</u>	<u>Commission Per Share</u>	<u>Fixed Income \$ Volume</u>	<u>Fixed Income \$ Commissions</u>
GORDON HASKET	5,628,837.81	13,392.76	0.08	1,966,501.31	390.63
GOWELL SECURITIES	2,077,180.44	2,048.00	0.04	0.00	0.00
GREENWICH CAPITAL CO	0.00	0.00	0.00	27,052,107.92	0.00
GREENWICH SECURITIES	0.00	0.00	0.00	3,648,906.25	0.00
GRUNTAL + CO	1,003,316.91	1,048.30	0.06	1,059,721.80	0.00
HAMBRECHT & QUIST	2,284,043.94	1,809.00	0.07	1,446,000.00	0.00
HERZOG HEINE	10,534,807.02	0.00	0.00	0.00	0.00
HOARE GOVETT	3,184,863.95	11,251.73	0.02	0.00	0.00
INSTINET	14,735,687.34	18,313.62	0.03	0.00	0.00
IRVING TRUST	0.00	0.00	0.00	2,561,375.00	0.00
ISI GROUP	1,001,892.42	2,335.00	0.06	0.00	0.00
J.C. BRADFORD & CO.	5,520,888.99	9,090.00	0.06	1,025,610.43	0.00
J.P. MORGAN SECURITI	27,000.00	0.00	0.00	32,277,871.98	0.00
JAMES CAPEL	1,510,924.12	7,582.21	0.05	0.00	0.00
JEFFERIES	68,288,613.93	40,776.93	0.04	5,559,466.24	0.00
JOHN HANCOCK CLEARIN	636,875.00	0.00	0.00	7,922,395.65	0.00
JOHNSTON, LEMON, & C	3,446,339.84	5,442.00	0.07	0.00	0.00
JONES ASSOCIATES	32,216,907.03	41,356.93	0.04	0.00	0.00
KALB, VOORHIS & CO.	4,482,439.90	3,154.92	0.03	0.00	0.00
KANSALLIS,OSAKE,PANK	8,693,090.19	17,810.00	0.07	0.00	0.00
KEMPER CLEARING CORP	1,387,559.34	2,874.00	0.06	594,564.75	0.00
KENNEY & BRANISEL	4,834,961.80	6,650.00	0.06	0.00	0.00
KIDDER PEABODY AND C	92,690,744.84	181,026.69	0.07	195,497,199.02	0.00
KIRKPATRICK SEC. INC	7,971,799.88	3,925.05	0.07	4,181,403.25	0.00
KLEINWORT & BENSON	1,085,963.75	1,500.00	0.08	0.00	0.00
KLEINWORTH, GRIEVESO	2,188,093.83	0.00	0.00	0.00	0.00
LANSTON	0.00	0.00	0.00	9,247,667.97	0.00

**Commissions and Trading Volume for Calendar Year 1991**  
**Excluding State Employees and Teachers Retirement Systems**

Table Six

Page Five

<u>Broker</u>	<u>Stock \$ Volume</u>	<u>Stock \$ Commissions</u>	<u>Commission Per Share</u>	<u>Fixed Income \$ Volume</u>	<u>Fixed Income \$ Commissions</u>
LAZARD FRERES AND CO	1,405,822.28	1,104.00	0.06	3,770,643.25	0.00
LEGG MASON WOOD	21,024,279.70	34,124.00	0.06	47,132,707.67	0.00
LEHMAN BROS.	243,341.67	263.00	0.06	14,918,475.62	0.00
LEHMAN CORPORATION	0.00	0.00	0.00	2,736,304.70	0.00
LEHMAN GOVERNMENT SE	0.00	0.00	0.00	9,950,626.40	0.00
LEHMAN SPECIAL SECUR	0.00	0.00	0.00	70,173,250.10	0.00
LEWCO SEC (HAMBRECHT	1,010,881.49	1,894.00	0.07	0.00	0.00
LEWCO SECURITIES	30,855,429.20	46,377.00	0.06	2,722,874.80	0.00
LIPPER ANALYTCL DIST	15,178,514.60	27,981.00	0.06	0.00	0.00
LOVETT,UNDERWOOD,NEU	0.00	0.00	0.00	1,189,125.00	0.00
LYNCH, JONES & RYAN	103,882,355.16	197,821.07	0.07	28,017,964.08	0.00
M L,PIERCE,FENNER,SM	0.00	0.00	0.00	10,948,015.63	0.00
MABON NAUGHT & CO.	0.00	0.00	0.00	1,411,875.00	0.00
MABON NUGENT & CO	2,470,738.15	4,238.00	0.07	3,503,373.43	0.00
MANUFACTURERS HANOVE	0.00	0.00	0.00	1,775,664.00	0.00
MCLAUGHLIN, PIVEN, &	4,648,225.36	6,783.27	0.07	17,322,788.85	0.00
MERRILL LYNCH	149,985,142.82	205,923.60	0.07	512,352,976.26	699.09
MERRILL LYNCH GOVT S	0.00	0.00	0.00	45,887,267.54	0.00
MESIROW & CO	0.00	0.00	0.00	17,715,196.00	0.00
MONTGOMERY SECURITIE	21,122,166.63	33,032.50	0.07	0.00	0.00
MORGAN KEEGAN	4,537.50	0.00	0.00	2,681,916.50	0.00
MORGAN STANLEY & CO	39,149,054.90	37,706.00	0.06	147,817,747.14	0.00
NATIONAL FINANCIAL	15,590,011.27	35,003.50	0.06	2,279,935.94	550.00
NEUBERGER & BERMAN	4,242,011.61	7,729.00	0.06	0.00	0.00
NOMURA SECURITIES	501,447.04	3,279.68	0.05	20,817,846.85	0.00
OFTRING AND COMPANY	0.00	0.00	0.00	5,007,812.50	0.00
OPPENHEIMER AND CO.	32,802,664.09	62,258.27	0.07	2,212,238.25	237.50

### Commissions and Trading Volume for Calendar Year 1991

Table Six

**Excluding State Employees and Teachers Retirement Systems**

Page Six

<u>Broker</u>	<u>Stock \$ Volume</u>	<u>Stock \$ Commissions</u>	<u>Commission Per Share</u>	<u>Fixed Income \$ Volume</u>	<u>Fixed Income \$ Commissions</u>
OSCAR GRUSS & SON	135,215,065.61	73,083.99	0.02	0.00	0.00
PAIN WEBBER	112,220,624.30	163,874.64	0.07	215,204,352.13	2,716.41
PERSHING CORP	32,060,690.01	54,470.00	0.06	110,596,444.42	125.00
PHILLIPS & DREW	1,205,215.66	1,281.90	0.04	38,724,656.01	0.00
PIPER, JAFFREY	3,063,245.87	2,075.00	0.07	30,656,709.57	0.00
PRESCOTT, BALL AND T	1,225,692.74	2,440.00	0.08	250,000.00	0.00
PRUDENTIAL BACHE SEC	42,496,085.46	62,770.60	0.06	274,273,556.46	1,001.57
RAYMOND JAMES	1,179,092.43	2,104.00	0.06	1,266,885.00	0.00
RBC DOMINION	0.00	0.00	0.00	1,295,275.00	0.00
REFCO PARTNERS	25,570.69	40.95	0.05	1,041,120.27	0.00
ROBERTSON STEPHENS &	1,185,521.50	0.00	0.00	0.00	0.00
ROBINSON HUMPHREY	2,672,142.39	4,310.00	0.06	0.00	0.00
RODMAN & RENSHAW	0.00	0.00	0.00	5,407,926.35	0.00
ROTHSCHILD INC.	1,685,779.79	1,958.00	0.07	0.00	0.00
ROULSTON RESEARCH CO	1,362,777.97	1,632.00	0.06	0.00	0.00
SALOMON BROTHERS INC	40,657,858.20	40,427.83	0.05	200,020,377.72	200.00
SAMPLE LYNCH USA	0.00	0.00	0.00	2,204,500.63	0.00
SANFORD BERNSTEIN	11,355,326.18	24,685.95	0.06	0.00	0.00
SANWA BANK	0.00	0.00	0.00	2,451,330.91	0.00
SANWA-BGK SECURITIES	0.00	0.00	0.00	16,399,778.68	0.00
SBCI SWISS BANK CORP	1,120,125.83	1,000.00	0.05	0.00	0.00
SEC SETTLMNT CORP	7,286,158.70	11,593.00	0.04	0.00	0.00
SEI FINANCIAL SERVIC	2,020,893.03	2,991.00	0.06	0.00	0.00
SHAW DATA SECURITIES	3,511,820.57	6,278.00	0.07	0.00	0.00
SHAWMUT BANK	1,000,000.00	0.00	0.00	0.00	0.00
SHEARSON LEHMAN BROT	146,195,922.73	168,817.34	0.06	317,658,444.10	7.00
SHEARSON LEHMAN GOVE	0.00	0.00	0.00	1,489,917.00	0.00

### Commissions and Trading Volume for Calendar Year 1991

Table Six

Excluding State Employees and Teachers Retirement Systems

Page Seven

<u>Broker</u>	<u>Stock \$ Volume</u>	<u>Stock \$ Commissions</u>	<u>Commission Per Share</u>	<u>Fixed Income \$ Volume</u>	<u>Fixed Income \$ Commissions</u>
SMITH BARNEY	23,121,391.32	31,705.50	0.06	164,828,317.38	97.50
SMITH NEW COURT SECS	1,296,476.47	2,965.15	0.01	0.00	0.00
SPEARS, LEEDS, & KEL	0.00	0.00	0.00	4,993,070.21	0.00
STANDARD & POORS	10,153,879.20	14,128.00	0.06	0.00	0.00
STATE STREET BK + TR	10,620,754.83	0.00	0.00	5,334,173.44	60.00
THE CITATION GROUP	5,156,631.01	14,353.00	0.10	0.00	0.00
THOMSON INSTITUTIONA	4,196,586.33	5,232.00	0.06	0.00	0.00
TRADESAVER INSTITUTI	2,036,334.75	5,680.00	0.10	0.00	0.00
TUCKER, ANTHONY AND	15,752,689.08	21,682.65	0.07	11,910,824.41	0.00
UBS SECURITIES	1,873,333.17	1,976.00	0.06	6,198,087.94	0.00
UBS SECURITIES, INC	4,640,792.23	6,939.00	0.06	32,255,287.04	0.00
VAN CASPEL & CO.	0.00	0.00	0.00	4,934,415.55	0.00
W&D SECURITIES	1,638,713.15	2,509.00	0.06	0.00	0.00
WAGNER STOTT & CO	3,463,360.35	6,812.00	0.06	2,591,126.20	0.00
WARBURG	9,242,082.94	15,925.51	0.03	4,128,149.86	0.00
WEEDEN & CO	9,034,578.15	6,385.00	0.07	0.00	0.00
WERTHEIM AND CO	9,680,011.40	27,134.00	0.10	9,450.00	0.00
WERTHEIM SCHRODER &	4,050,304.60	11,125.00	0.10	0.00	0.00
WESSELLS ARNOLD & HE	2,535,065.11	0.00	0.00	0.00	0.00
WHEAT FIRST SECURITI	2,097,672.45	3,005.00	0.08	7,819,461.66	0.00
WILLIAM BLAIR & CO	1,100,472.03	1,699.00	0.07	0.00	0.00
WILLIAM DE BROE	2,209,910.15	3,890.00	0.06	0.00	0.00
WILSHIRE ASSOCIATES	16,385,903.69	30,223.69	0.07	0.00	0.00

*Annual Report of the*  
**Massachusetts Contributory Retirement Systems**  
*for the year ending December 31, 1991*

Table Seven	Gross and Net Performance / Management, Custodian Bank and Consultant Fees						Page One
<u>Retirement System</u>	..... Gross and Net Performance .....			....Management, Custodian Bank and Consultant Fees .....			
	Gross	Net	Basis Point Difference	Management Fees	Custodian Bank Fees	Consultant Fees	As a % of Market Value
ADAMS	17.97	17.67	30	15,689.00	6,089.83	0.00	0.33
AMESBURY	19.50	19.23	27	23,137.03	10,268.10	6,264.42	0.34
ANDOVER	43.23	42.94	29	40,000.00	13,805.00	0.00	0.23
ARLINGTON	17.80	17.40	40	145,708.75	11,955.82	0.00	0.32
ATHOL	15.63	15.24	39	15,307.07	4,940.07	0.00	0.43
ATTLEBORO	19.32	19.06	26	38,993.21	0.00	0.00	0.20
BARNSTABLE COUNTY	17.72	17.27	45	294,027.82	30,288.00	6,500.00	0.41
BELMONT	20.76	20.03	73	99,899.31	20,493.00	8,125.00	0.58
BERKSHIRE COUNTY	18.31	18.28	3	3,609.00	3,541.22	67.00	0.03
BEVERLY	22.64	22.09	55	105,994.19	16,462.69	0.00	0.50
BLUE HILLS REG VO	19.67	18.87	80	19,051.90	0.00	0.00	0.64
BOSTON	21.53	21.19	34	2,545,260.16	693,634.69	0.00	0.27
BRAINTREE	16.64	16.23	41	122,964.41	25,424.38	0.00	0.42
BRISTOL COUNTY	19.18	18.76	42	252,066.88	0.00	0.00	0.33
BROCKTON	20.22	19.70	52	275,366.13	60,957.36	0.00	0.50
BROOKLINE	23.33	22.95	38	155,012.00	26,820.32	2,159.00	0.29
CAMBRIDGE	16.01	15.24	77	832,263.26	0.00	0.00	0.63
CHELSEA	21.55	21.24	31	49,059.70	0.00	0.00	0.25
CHICOPEE	18.74	18.26	48	152,542.52	23,649.93	0.00	0.42
CLINTON	17.73	17.48	25	11,324.74	0.00	0.00	0.21
CONCORD	20.41	20.02	39	46,063.10	12,342.80	109.00	0.36
DANVERS	20.13	20.12	1	56,473.64	10,150.00	27.00	0.24
DEDHAM	15.46	14.78	68	69,638.00	7,456.00	1,247.00	0.56
DUKES COUNTY	10.89	10.61	28	28,257.91	0.00	0.00	0.43
EASTHAMPTON	17.85	17.85	0	42,321.37	0.00	0.00	0.49
ESSEX COUNTY	16.93	16.93	0	257,484.00	35,310.96	9,800.00	0.50
EVERETT	23.43	23.18	25	55,775.60	0.00	0.00	0.20

Table Seven

**Gross and Net Performance / Management, Custodian Bank and Consultant Fees**

Page Two

<u>Retirement System</u>	<u>..... Gross and Net Performance .....</u>			<u>.....Management, Custodian Bank and Consultant Fees .....</u>			
	<u>Gross</u>	<u>Net</u>	<u>Basis Point Difference</u>	<u>Management Fees</u>	<u>Custodian Bank Fees</u>	<u>Consultant Fees</u>	<u>As a % of Market Value</u>
FAIRHAVEN	15.31	14.65	66	30,374.00	3,254.00	543.00	0.53
FALL RIVER	22.01	21.81	20	124,896.64	0.00	0.00	0.16
FALMOUTH	23.87	23.50	37	52,075.23	0.00	4,600.00	0.30
FITCHBURG	21.00	21.00	0	33,323.75	0.00	0.00	0.11
FRAMINGHAM	20.85	20.39	46	152,998.06	5,683.00	951.00	0.34
FRANKLIN COUNTY	17.18	17.18	0	56,376.00	4,000.00	0.00	0.42
GARDNER	15.13	14.46	67	49,133.00	5,263.00	882.00	0.53
GLOUCESTER	18.15	17.72	43	62,509.00	9,196.21	15,010.00	0.42
GREATER LAWRENCE	18.70	18.13	57	12,948.88	0.00	200.00	0.45
GREENFIELD	18.23	18.14	9	20,636.95	9,590.89	4,107.39	0.32
HAVERHILL	20.32	19.64	68	237,888.74	30,086.19	0.00	0.57
HINGHAM	14.23	13.56	67	66,582.00	7,130.00	1,192.00	0.54
HOLYOKE	18.50	18.50	0	169,212.00	15,113.94	0.00	0.39
HAMPDEN COUNTY	18.05	17.67	38	182,881.04	16,458.34	0.00	0.33
HAMPSHIRE COUNTY	15.24	14.80	44	136,209.69	15,430.22	0.00	0.40
HULL	15.01	14.63	38	16,599.99	1,200.00	0.00	0.31
LAWRENCE	27.20	26.53	67	220,058.00	13,620.00	0.00	0.50
LEOMINSTER	17.39	17.39	0	22,316.00	10,132.63	0.00	0.16
LEXINGTON	24.85	24.36	49	99,808.11	17,216.62	0.00	0.41
LOWELL	16.60	16.09	51	183,696.56	32,672.09	64.00	0.41
LYNN	33.49	33.15	34	191,766.00	18,205.15	0.00	0.26
MASS TURNPIKE AUT	15.38	15.37	1	49,850.00	24,865.95	0.00	0.09
MALDEN	36.08	35.68	40	91,865.00	4,913.04	0.00	0.28
MARBLEHEAD	35.37	34.97	40	56,776.00	10,750.00	0.00	0.32
MARLBOROUGH	18.05	17.58	47	65,246.00	15,000.00	0.00	0.45
MAYNARD	14.80	14.11	69	25,134.44	0.00	0.00	0.54
MEDFORD	15.31	14.98	33	64,045.58	17,510.45	28,450.05	0.27

Table Seven

Gross and Net Performance / Management, Custodian Bank and Consultant Fees

Page Three

<u>Retirement System</u>	<u>..... Gross and Net Performance .....</u>			<u>....Management, Custodian Bank and Consultant Fees .....</u>			
	<u>Gross</u>	<u>Net</u>	<u>Basis Point Difference</u>	<u>Management Fees</u>	<u>Custodian Bank Fees</u>	<u>Consultant Fees</u>	<u>As a % of Market Value</u>
MELROSE	17.22	16.92	30	46,168.34	7,911.88	0.00	0.30
METHUEN	15.52	15.37	15	75,401.00	16,868.62	427.00	0.41
MASS HOUSING FINA	15.28	14.60	68	67,798.00	7,260.00	1,215.00	0.54
MIDDLESEX COUNTY	22.06	21.31	75	1,126,112.88	147,754.98	75,000.00	0.57
MILFORD	23.20	23.20	0	32,616.05	0.00	0.00	0.22
MILTON	15.42	14.73	69	100,786.00	10,788.00	1,807.00	0.56
MINUTEMAN REG VO	14.70	14.07	63	11,511.00	1,233.00	207.00	0.50
MONTAGUE	15.68	15.01	67	18,667.00	1,996.00	334.00	0.52
MASS PORT AUTH	20.51	20.51	0	78,773.90	33,864.25	0.00	0.11
MASS WATER RESOUR	17.42	17.00	42	46,810.75	235.00	330.00	0.31
NATICK	21.50	21.26	24	43,101.37	18,913.47	0.00	0.21
NEEDHAM	15.32	14.64	68	168,162.00	18,024.00	3,019.00	0.56
NEW BEDFORD	20.95	20.39	56	249,829.26	29,535.16	0.00	0.49
NEWTON	22.80	22.17	63	404,726.86	92,925.84	0.00	0.48
NORFOLK COUNTY	15.08	14.42	66	659,490.00	70,458.00	11,794.00	0.54
NORWOOD	14.96	14.79	17	52,388.24	14,391.32	0.00	0.17
NORTH ADAMS	31.57	31.13	44	34,241.00	2,916.90	0.00	0.31
NORTH ATTLEBORO	18.19	17.62	57	57,223.50	11,325.43	9,194.53	0.59
NORTHBIDGE	15.30	14.62	68	19,020.00	2,029.00	341.00	0.59
NORTHAMPTON	32.38	31.99	39	42,376.00	10,866.09	0.00	0.34
NEWBURYPORT	21.03	20.70	33	26,395.05	6,929.74	0.00	0.31
PEABODY	17.96	17.53	43	138,685.00	18,055.67	0.00	0.39
PLYMOUTH COUNTY	18.49	18.48	1	7,331.52	17,243.35	0.00	0.02
PLYMOUTH	24.77	24.26	51	100,755.48	0.00	1,500.00	0.36
PRIM BOARD	14.69	14.01	68	17,163,144.00	1,837,475.00	307,649.00	0.57
PITTSFIELD	17.85	17.37	48	121,629.00	15,000.00	0.00	0.38
QUINCY	19.07	18.58	49	353,837.10	30,053.04	103.00	0.43

Table Seven

**Gross and Net Performance / Management, Custodian Bank and Consultant Fees**

Page Four

<u>Retirement System</u>	<u>..... Gross and Net Performance .....</u>			<u>....Management, Custodian Bank and Consultant Fees .....</u>			
	<u>Gross</u>	<u>Net</u>	<u>Basis Point Difference</u>	<u>Management Fees</u>	<u>Custodian Bank Fees</u>	<u>Consultant Fees</u>	<u>As a % of Market Value</u>
READING	15.43	14.75	68	86,466.00	9,243.00	1,548.00	0.53
REVERE	15.65	15.26	39	58,249.80	18,986.08	12,871.00	0.30
SALEM	18.73	18.11	62	138,612.96	19,999.94	28,416.69	0.56
SAUGUS	14.94	14.28	66	60,925.00	6,539.00	1,097.00	0.49
SHREWSBURY	15.19	14.51	68	72,604.00	7,739.00	1,295.00	0.55
SOMERVILLE	20.13	19.53	60	270,160.72	5,000.00	0.00	0.55
SPRINGFIELD	22.90	22.76	14	90,000.00	35,000.00	15,000.00	0.11
STATE TEACHERS	18.53	18.06	47	15,275,028.27	2,012,003.51	242,679.34	0.37
STATE	18.10	17.60	50	16,113,992.67	2,057,852.74	260,248.33	0.39
SOUTHBRIDGE	17.76	17.24	52	22,023.00	8,202.16	0.00	0.56
STONEHAM	17.15	16.60	55	73,579.00	11,287.50	15,155.20	0.59
SWAMPSCOTT	30.22	29.89	33	0.00	0.00	24,247.00	0.24
TAUNTON	18.85	18.41	44	127,833.23	0.00	0.00	0.36
WAKEFIELD	15.11	14.45	66	96,354.00	10,242.00	1,714.00	0.55
WALTHAM	21.82	21.82	0	96,345.20	0.00	0.00	0.16
WATERTOWN	18.10	17.54	56	107,322.06	25,253.84	16,500.00	0.53
WEBSTER	17.65	17.08	57	22,567.00	587.12	0.00	0.50
WELLESLEY	25.78	25.41	37	258,603.77	14,597.23	0.00	0.54
WEYMOUTH	15.48	14.81	67	146,109.00	15,647.00	2,619.00	0.56
WINCHESTER	18.58	17.85	73	76,362.00	26,555.48	32,115.20	0.62
WINTHROP	19.91	19.60	31	4,651.84	16,343.66	0.00	0.23
WOBURN	15.86	15.61	25	50,452.00	20,226.37	0.00	0.29
WORCESTER	15.11	14.89	22	237,970.97	35,691.89	65,263.00	0.22
WORCESTER COUNTY	16.21	15.93	28	163,279.71	49,014.12	70,000.00	0.24
WEST SPRINGFIELD	18.34	18.09	25	29,306.00	12,386.00	0.00	0.28
WESTFIELD	18.66	18.17	49	124,544.00	21,086.63	0.00	0.44

*Annual Report of the  
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Table Eight

**Portfolio Turnover**

Page One

<u>Retirement System</u>	<u>Equity Turnover</u>				<u>Fixed Income Turnover</u>				<u>Total Sales</u>	<u>% of Beg. Market Value</u>
	<u>Total Purchases</u>	<u>% of Avg.</u>	<u>Total Sales</u>	<u>% of Avg.</u>	<u>Total Purchases</u>	<u>% of Beg.</u>	<u>Total Sales</u>	<u>% of Beg.</u>		
ADAMS	895,204.53	58.89	963,681.51	63.39	1,955,165.27	67.68	775,916.41	26.86		
AMESBURY	2,359,294.00	85.24	1,690,755.37	61.08	1,896,321.88	38.79	842,384.02	17.23		
ANDOVER	1,824,058.66	20.21	2,139,434.54	23.70	12,342,386.32	163.33	9,925,300.16	131.34		
ARLINGTON	5,791,310.50	44.26	2,680,847.55	20.49	6,260,240.63	22.90	5,999,064.98	21.94		
ATHOL	730,108.66	77.05	863,974.46	91.18	1,687,155.90	74.89	818,617.41	36.34		
ATTLEBORO	3,348,081.79	60.12	3,334,441.16	59.88	15,167,854.36	182.43	13,768,613.58	165.60		
BARNSTABLE COUNTY	29,000,752.02	82.76	23,379,460.22	66.72	54,812,120.04	602.53	45,571,190.50	500.95		
BELMONT	4,628,803.90	61.73	2,023,556.48	26.99	6,962,796.63	78.57	5,470,637.96	61.73		
BERKSHIRE COUNTY	38,892.24	2.33	0.00	0.00	10,655,767.16	103.89	1,376,569.35	13.42		
BEVERLY	4,558,616.29	40.20	4,721,509.67	41.63	18,590,421.68	197.13	17,987,454.66	190.73		
BLUE HILLS REG VO	133,227.35	20.79	84,746.14	13.22	941,123.62	55.07	902,275.28	52.80		
BOSTON	496,580,712.73	82.17	396,217,872.70	65.57	671,889,584.26	229.03	705,549,768.76	240.50		
BRAINTREE	707,082.10	15.68	968,355.04	21.48	23,808,026.64	123.84	23,461,405.14	122.03		
BRISTOL COUNTY	23,120,436.74	103.66	33,204,976.91	148.88	70,176,981.42	242.55	54,417,072.91	188.08		
BROCKTON	43,386,617.09	168.62	36,187,089.99	140.64	19,700,686.52	76.26	17,677,524.62	68.43		
BROOKLINE	17,818,578.52	77.21	15,705,752.85	68.05	25,930,990.61	90.64	25,683,547.83	89.78		
CAMBRIDGE	67,662,520.84	90.52	56,240,170.20	75.24	17,987,583.94	86.99	12,443,841.40	60.18		
CHELSEA	4,882,686.91	82.50	5,385,859.93	91.00	6,144,191.95	62.87	3,872,611.55	39.63		
CHICOPEE	10,351,835.06	79.73	7,179,372.90	55.29	4,854,043.49	27.32	6,932,824.19	39.02		
CLINTON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
CONCORD	826,291.94	14.94	360,000.00	6.51	2,019,044.25	30.10	1,127,452.98	16.81		
DANVERS	7,129,131.69	95.16	5,854,464.75	78.14	3,099,253.13	21.44	2,523,422.13	17.46		
DEDHAM	1,191,090.95	9.33	140,695.34	1.10	0.00	0.00	0.00	0.00		
DUKES COUNTY	1,635,996.04	108.65	4,770,173.84	316.79	0.00	0.00	91,124.07	6.75		
EASTHAMPTON	617,089.45	48.59	242,377.76	19.09	649,062.50	11.97	58,859.98	1.09		
ESSEX COUNTY	19,884,719.56	92.81	13,248,279.61	61.84	13,370,269.69	63.04	12,288,346.71	57.94		
EVERETT	8,184,104.30	82.36	8,823,407.15	88.79	28,817,412.90	213.72	26,456,032.48	196.20		

Table Eight

## Portfolio Turnover

Page Two

Retirement System	Equity Turnover				Fixed Income Turnover			
	Total Purchases	% of Avg. Market Value	Total Sales	% of Avg. Market Value	Total Purchases	% of Beg. Market Value	Total Sales	% of Beg. Market Value
FAIRHAVEN	851,504.42	15.51	535,986.35	9.77	0.00	0.00	0.00	0.00
FALL RIVER	17,246,443.38	80.96	18,226,074.02	85.56	87,366,947.11	206.73	78,112,421.00	184.83
FALMOUTH	1,712,615.25	23.71	135,205.48	1.87	1,300,812.50	15.84	700,015.05	8.53
FITCHBURG	4,106,381.00	50.86	2,517,448.19	31.18	3,624,924.02	27.34	2,284,296.91	17.23
FRAMINGHAM	8,723,791.94	21.35	4,560,443.30	11.16	0.00	0.00	2,433.67	17.15
FRANKLIN COUNTY	2,870,828.29	86.02	2,294,554.27	68.75	3,555,237.56	49.91	2,259,983.32	31.73
GARDNER	1,448,753.46	17.02	867,176.89	10.18	0.00	0.00	0.00	0.00
GLOUCESTER	8,372,175.08	106.06	5,008,995.25	63.46	2,767,581.81	31.47	2,420,379.67	27.52
GREATER LAWRENCE	254,181.58	41.11	190,140.15	30.75	1,302,484.38	97.66	958,513.43	71.87
GREENFIELD	2,524,080.58	81.28	2,474,670.94	79.69	2,585,513.07	83.51	1,964,480.09	63.45
HAVERHILL	32,517,093.83	193.84	26,113,152.52	155.66	10,942,824.79	60.20	9,403,962.04	51.73
HINGHAM	1,947,354.72	15.89	602,387.57	4.92	0.00	0.00	0.00	0.00
HOLYOKE	18,503,748.40	96.75	11,542,723.99	60.35	7,983,105.04	38.14	8,013,279.41	38.28
HAMPDEN COUNTY	22,965,592.80	133.75	13,492,482.42	78.58	19,872,590.90	66.86	18,168,976.84	61.13
HAMPSHIRE COUNTY	11,375,299.14	115.51	3,479,619.14	35.33	6,224,002.27	41.09	5,178,373.15	34.18
HULL	467,949.00	111.99	338,583.42	81.03	2,313,171.86	78.42	1,935,135.50	65.61
LAWRENCE	15,054,682.90	100.38	14,513,736.36	96.77	32,536,806.11	146.32	30,590,078.12	137.57
LEOMINSTER	4,300,139.00	94.16	1,788,572.24	39.16	3,646,016.59	38.60	3,142,171.64	33.27
LEXINGTON	4,233,980.60	33.23	3,555,142.34	27.90	5,390,732.21	52.97	4,263,827.11	41.90
LOWELL	9,903,455.77	57.68	5,207,130.94	30.33	129,559,262.77	622.20	128,269,588.48	616.01
LYNN	29,328,227.50	81.39	25,001,724.46	69.38	25,456,087.00	84.02	22,581,861.26	74.54
MASS TURNPIKE AUT	1,000,000.00	102.49	1,090,015.65	111.72	15,197,311.66	28.47	8,148,027.37	15.26
MALDEN	10,763,249.35	73.21	12,617,255.53	85.82	13,337,253.55	122.18	8,829,903.55	80.89
MARBLEHEAD	7,239,064.62	83.73	5,606,698.80	64.85	10,516,609.90	173.03	7,269,820.06	119.61
MARLBOROUGH	4,765,178.98	87.69	3,655,162.60	67.26	4,057,016.06	50.13	2,273,767.67	28.09
MAYNARD	1,340,675.01	71.26	3,561,399.69	189.30	2,404,596.65	905.85	34,788.95	13.11
MEDFORD	7,715,088.20	71.65	1,126,596.22	10.46	4,235,871.35	21.84	4,695,393.05	24.21

Table Eight

## Portfolio Turnover

Page Three

<u>Retirement System</u>	<u>Equity Turnover</u>				<u>Fixed Income Turnover</u>			
	Total Purchases	% of Avg. Market Value	Total Sales	% of Avg. Market Value	Total Purchases	% of Beg. Market Value	Total Sales	% of Beg. Market Value
MELROSE	1,859,655.21	35.77	881,245.96	16.95	2,256,467.58	27.63	1,570,953.83	19.24
METHUEN	1,487,865.80	18.28	404,425.51	4.97	6,326,590.80	74.84	6,269,787.75	74.17
MASS HOUSING FINA	1,529,620.03	12.63	0.00	0.00	0.00	0.00	0.00	0.00
MIDDLESEX COUNTY	75,527,220.18	76.16	54,148,388.65	54.60	50,218,965.16	58.52	43,714,667.55	50.94
MILFORD	3,802,067.39	73.23	3,909,274.40	75.29	12,077,125.69	217.26	10,260,940.23	184.59
MILTON	3,892,919.01	22.49	1,319,596.18	7.62	0.00	0.00	0.00	0.00
MINUTEMAN REG VO	124,114.29	5.89	68.98	0.00	0.00	0.00	0.00	0.00
MONTAGUE	681,734.08	19.32	412,561.99	11.69	0.00	0.00	0.00	0.00
MASS PORT AUTH	10,829,643.52	29.24	8,483,960.87	22.90	20,141,107.50	42.69	13,733,638.47	29.11
MASS WATER RESOUR	5,116,496.09	163.39	4,730,961.52	151.08	10,787,464.23	295.12	5,346,228.48	146.26
NATICK	1,112,800.98	9.91	0.00	0.00	5,993,125.00	64.47	3,045,625.00	32.76
NEEDHAM	4,455,501.88	14.55	1,757,804.30	5.74	0.00	0.00	0.00	0.00
NEW BEDFORD	14,766,570.90	48.91	13,661,861.20	45.25	74,549,727.90	565.78	68,634,325.68	520.88
NEWTON	38,250,644.56	78.75	41,400,328.20	85.24	21,962,012.94	69.84	23,075,522.78	73.38
NORFOLK COUNTY	19,053,948.19	15.79	1,606,874.74	1.33	0.00	0.00	0.00	0.00
NORWOOD	3,343,043.52	56.47	23,591.83	0.40	3,842,578.06	15.99	2,840,929.99	11.82
NORTH ADAMS	3,641,907.64	83.68	3,317,283.29	76.22	4,325,367.48	85.86	3,432,942.62	68.14
NORTH ATTLEBORO	4,115,061.38	123.53	3,965,783.50	119.05	2,548,786.50	39.34	1,875,675.09	28.95
NORTHBRIDGE	415,685.25	11.85	397,381.90	11.33	0.00	0.00	0.00	0.00
NORTHAMPTON	5,143,473.35	81.48	4,647,748.10	73.63	5,693,613.40	96.83	4,519,054.45	76.85
NEWBURYPORT	2,765,648.40	96.06	2,233,920.78	77.59	1,806,907.60	39.24	739,279.08	16.05
PEABODY	15,534,027.31	93.86	9,147,144.12	55.27	5,807,865.25	34.63	6,460,237.37	38.52
PLYMOUTH COUNTY	12,670,900.79	89.64	5,514,480.45	39.01	2,998,750.00	3.31	7,104,410.30	7.85
PLYMOUTH	1,778,250.00	16.54	354,938.73	3.30	2,658,503.75	21.11	2,344,538.75	18.61
PRIM BOARD	1,164,460,077.00	56.21	926,380,520.74	44.72	906,767,355.64	103.96	839,456,762.69	96.24
PITTSFIELD	9,266,493.37	84.21	7,722,917.99	70.19	8,615,126.85	60.17	5,790,275.04	40.44
QUINCY	17,307,430.59	50.93	9,573,942.06	28.17	76,434,735.91	223.43	72,892,964.68	213.08

Table Eight

## Portfolio Turnover

Page Four

<u>Retirement System</u>	<u>Equity Turnover</u>				<u>Fixed Income Turnover</u>			
	Total Purchases	% of Avg. Market Value	Total Sales	% of Avg. Market Value	Total Purchases	% of Beg. Market Value	Total Sales	% of Beg. Market Value
READING	2,581,409.46	16.26	1,264,556.94	7.96	0.00	0.00	0.00	0.00
REVERE	4,156,341.00	107.21	1,511,386.28	38.98	7,585,401.26	56.31	5,099,701.24	37.85
SALEM	6,676,859.87	69.14	4,666,066.42	48.32	13,694,459.94	83.67	12,744,660.65	77.87
SAUGUS	2,729,385.18	26.17	1,404,821.28	13.47	0.00	0.00	0.00	0.00
SHREWSBURY	1,930,711.00	14.34	812,897.89	6.04	0.00	0.00	0.00	0.00
SOMERVILLE	5,108,819.78	28.53	32,255,102.24	180.13	0.00	0.00	594,920.65	15.74
SPRINGFIELD	26,852,999.15	67.22	32,221,565.09	80.65	114,041,616.11	182.57	97,669,342.19	156.36
STATE TEACHERS	1,374,070,970.19	32.16	999,322,302.03	23.39	0.00	0.00	0.00	0.00
STATE	1,427,158,533.88	34.09	954,233,621.79	22.79	0.00	0.00	0.00	0.00
SOUTHBRIDGE	2,010,618.04	105.10	1,139,134.28	59.54	1,173,240.13	58.05	1,000,516.98	49.50
STONEHAM	1,596,913.00	30.30	605,989.45	11.50	5,056,441.18	61.80	5,293,920.78	64.70
SWAMPSCOTT	3,634,583.57	98.43	3,572,267.85	96.74	3,937,200.20	100.26	2,671,154.70	68.02
TAUNTON	6,392,669.57	51.11	2,241,048.05	17.92	8,663,169.06	44.14	10,246,919.62	52.21
WAKEFIELD	3,015,295.02	16.94	1,747,494.44	9.82	0.00	0.00	0.00	0.00
WALTHAM	11,628,054.20	54.72	12,422,174.23	58.46	49,998,170.47	178.21	46,767,377.40	166.70
WATERTOWN	7,267,933.33	74.59	2,934,449.07	30.12	28,501,642.05	194.95	31,195,240.72	213.37
WEBSTER	1,156,043.81	40.90	16,624.95	0.59	0.00	0.00	15,282.27	2.55
WELLESLEY	25,301,741.63	109.63	18,734,163.44	81.17	36,922,993.45	192.95	39,339,855.29	205.58
WEYMOUTH	4,633,924.41	17.30	2,844,430.02	10.62	0.00	0.00	0.00	0.00
WINCHESTER	7,155,470.57	94.22	5,592,380.64	73.64	5,207,523.99	60.07	3,254,187.64	37.54
WINTHROP	0.00	0.00	0.00	0.00	1,053,707.08	21.28	1,138,353.90	22.99
WOBURN	1,729,106.50	56.99	258,619.63	8.52	12,367,005.68	94.87	9,745,502.58	74.76
WORCESTER	49,795,205.58	69.74	44,795,061.47	62.74	33,642,553.37	77.53	26,874,941.10	61.94
WORCESTER COUNTY	53,957,466.10	216.97	36,350,659.02	146.17	25,032,915.05	30.34	43,213,889.46	52.38
WEST SPRINGFIELD	5,727,270.00	143.11	4,775,067.74	119.32	1,313,624.98	14.65	1,826,034.06	20.36
WESTFIELD	14,914,292.64	123.77	7,563,443.57	62.77	12,596,275.03	131.08	10,142,260.77	105.54

## **PART V:**

### ***INVESTMENT COUNSELORS, CONSULTANTS AND CUSTODIAN BANKS***

The statute governing the investment of public pension funds enables Boards to delegate day to day management responsibilities to professional investment managers. That delegation may take place only with authorization by PERA. This Division assesses the record and qualifications of the prospective manager and the Board in an objective manner and does not substitute its judgment for that of the Board.

Each manager generally must be a registered Investment Adviser pursuant to federal law. PERA, by regulation, also requires advisers to meet a Code of Ethics for Fiduciaries and Standards of Conduct for Investment Advisers.

In order to satisfy their fiduciary obligations, Boards must employ a process in selecting firms which is similar to that which a prudent person would employ. Furthermore, following selection that duty requires Boards to formally monitor the manager's performance and take corrective action if necessary. Failure to follow this course of action could lead to a breach of fiduciary duty and personal liability for Board members.

Boards have recently retained investment consultants to assist in the selection and evaluation of money managers. Some firms also advise the Boards in establishing investment objectives and determining asset allocations. The Boards also have a fiduciary duty to use an objective, competitive process in the selection and retention of these firms. Once again, failure to fulfill that duty may subject Board members to personal liability.

Custodian banks are hired by Boards for the recordkeeping function. These banks also play a role in the cash management. Once again, failure to meet fiduciary duty in the selection and retention of these banks could result in personal liability for Board members.

The information that follows lists those firms which provide management, consulting and custodian services to the Boards. This information was taken from the records on file at PERA.

During the course of the last several years, the selection and evaluation of competing firms has had an increasing impact on the investment performance of the retirement systems. Prudent decision-making in this important area will not only enable Board members to avoid personal liability but will assure solid long term performance.

The following is a list of each retirement system and the investment counselor, consultant and custodian retained by each retirement system as of May 15, 1992.

**ADAMS RETIREMENT SYSTEM**

E.R. Taylor Investments (5/25/89)

*Custodian:* BayBank

**AMESBURY RETIREMENT SYSTEM**

Boston Financial Management, Inc.

*Consultant:* The Hannah Group

*Custodian:* State Street Bank

**ANDOVER RETIREMENT SYSTEM**

Hawthorne Associates (8/31/89)

*Custodian:* State Street Bank

**ARLINGTON RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (3/5/85)

State Street Bank & Trust Co. (2/6/92)

*Consultant:* Wilshire Associates

*Custodian:* State Street Bank

**ATHOL RETIREMENT SYSTEM**

Shawmut Bank, N.A. (6/25/85)

PaineWebber Properties III (12/22/88-real estate)

PaineWebber Independent Fund (8/8/89-real estate)

*Custodian:* Shawmut

**ATTLEBORO RETIREMENT SYSTEM**

BayBanks, Inc. (4/1/85)

PaineWebber Properties II (12/22/88-real estate)

PaineWebber Properties II (8/28/89-real estate)

*Custodian:* BayBank

**BARNSTABLE COUNTY RETIREMENT SYSTEM**

Aetna Capital Management (7/27/89)

Aetna Capital Management (7/27/89-real estate)

Aetna Capital Management (7/27/89-international equity)

Boston Company (7/27/89)

Lombard Odier (12/21/89-international equity)

U.S. Trust Asset Management (4/24/92)

*Consultant:* William M. Mercer

*Custodian:* Multibank (South Shore Bank)

## **BELMONT RETIREMENT SYSTEM**

Oppenheimer Capital (6/30/89)

The Belmont Retirement System purchased shares of the PRIT fund on 5/24/89.

*Consultant:* New England Pension Consultants

*Custodian:* BayBank

## **BERKSHIRE COUNTY RETIREMENT SYSTEM**

The Berkshire County Retirement System invests pursuant to statutory restrictions on investments in accordance with M.G.L. c. 32. The Berkshire County Retirement System purchased shares of the PRIT fund on 2/23/87.

*Custodian:* First Agricultural Bank

## **BEVERLY RETIREMENT SYSTEM**

Aetna Capital Management (8/31/89)

Aetna Capital Management (8/31/89-real estate)

Aetna Capital Management (8/31/89-international equity)

Massachusetts Financial Services (8/31/89)

*Consultant:* New England Pension Consultants

*Custodian:* State Street Bank

## **BLUE HILLS REGIONAL VOCATIONAL SCHOOL EMPLOYEES RETIREMENT SYSTEM**

David L. Babson (4/12/85)

*Custodian:* Multibank (South Shore Bank)

## **BOSTON RETIREMENT SYSTEM**

Wellington Management Company (2/21/85)

Eagle Asset Management (11/14/86)

Avatar Associates (11/14/86)

Bear Stearns, Inc. (2/4/87)

Oechsle International Advisors (6/30/87-international equity)

Warburg Investment Management International Ltd. (7/15/87- international equity)

State Street Bank & Trust (12/12/88)

Back Bay Advisors (9/7/89-fixed income)

Massachusetts Financial Services (9/7/89-fixed income)

Richmond Capital Management (9/7/89-fixed income)

Metric Institutional Realty-Metric Inst. Fund L.P. (9/7/89- real estate)

Criterion Investment Management (9/14/89-fixed income)

Heitman Advisory Corporation (11/17/89-real estate)

MIG Realty Advisors (12/19/89-real estate)

Shurgard Securities Corporation-Shurgard Inst. Fund L.P. II (5/11/90-real estate)

Acadian Asset Management (5/11/90-international equity)

Dimensional Fund Advisors (5/11/90-international equity)

## **BOSTON RETIREMENT SYSTEM (cont'd)**

PCM International (5/11/90-international fixed income)

Thomas H. Lee Equity Partners, L.P. (5/11/90-leveraged buyout)

BEA Associates, Inc. (4/25/91-international equity)

RREEF MidAmerica East-IV and RREEF MidAmerica West-VI (5/5/92- real estate)

Schroder Real Estate Value-Enhancement Fund B, L.P. (5/5/92- real estate)

*Supplementary regulations were approved for the following:*

Property Capital Advisors-real estate

LaSalle Advisors (Urban Site Venture and LaSalle Fund 3)- real estate

INVESCO Realty Adv.-real estate

Frank Russell Trust-real estate

Public Storage Inst. Fund II-real estate

Copley Partners I & II-venture capital

*Consultant:* SEI

*Custodian:* State Street Bank

## **BRAINTREE RETIREMENT SYSTEM**

1838 Investment Advisors (9/9/86)

*Custodian:* BayBank

## **BRISTOL COUNTY RETIREMENT SYSTEM**

BayBanks, Inc. (3/16/88-fixed income)

Aetna Capital Management (2/23/89)

Aetna Capital Management (2/23/89-real estate)

Aetna Capital Management (2/23/89-international equity)

BayBanks, Inc. (7/05/89-equity)

*A supplementary regulation was approved for the following:*

Palmer Organization III L.P.-venture capital

*Custodian:* BayBank

## **BROCKTON RETIREMENT SYSTEM**

Freedom Capital Management Corporation (6/7/89)

Loomis Sayles & Company (6/7/89-fixed income)

Keystone Investment Management Corporation (3/1/90)

Lehndorff Babson-Fund III (5-11-90-real estate)

Bank of Ireland (6-15-90-international equity)

Boston Capital Ventures II (11/26/91-venture capital)

*Consultant:* Prime (Kidder Peabody)

*Custodian:* Boston Safe Deposit

## **BROOKLINE RETIREMENT SYSTEM**

State Street Research (6/26/86)

State Street Research (8/24/89-international)

The Brookline Retirement System purchased shares of the PRIT fund on 9/30/89.

*Consultant:* Wyatt Asset Services, Inc.

*Custodian:* State Street Bank

## **CAMBRIDGE RETIREMENT SYSTEM**

APT Financial Services (5/19/88-real estate) (APT Income Plus I L.P.)

Acorn Asset Management Corporation (11/9/90)

Freedom Capital Corporation (11/9/90)

State Street Research & Management Company (11/9/90)

Wellington Management Company (11/9/90)

Mutual of NY (11/9/90-fixed income)

(Intermediate Bond Fund & Public Bond Fund Pooled Account)

Aetna Congregate Care Fund (11/9/90-real estate)

Bank of Ireland (11/9/90-international equity)

Standard Chartered Equitor Asset Mgmt. N.A., Inc. (2/25/92- fixed income)

*Consultant:* Prime (Kidder Peabody)

*Custodian:* State Street Bank

## **CHELSEA RETIREMENT SYSTEM**

BayBanks, Inc. (8/24/89)

*Custodian:* BayBank

## **CHICOPEE RETIREMENT SYSTEM**

Freedom Capital Management Corporation (6/26/86)

Leonard Management Group (3/21/88)

State Street Research & Management Company (11/24/89)

Metric Inst. Realty Adv. (2/18/92-real estate) (Metric Inst. Apt. Fund II, L.P.)

Met Life/State Street Research and Mgmt. Co. (11/27/91-equity) (Capital Appreciation Acct.)

Met Life Liquidity Plus Fund (2/18/92)

Metropolitan Life Ins. Co. (11/27/91-real estate)

MassMutual Life Ins. Co. (11/27/91-fixed income) (MassMutual Participation Investors)

*Custodian:* BayBank

## **CLINTON RETIREMENT SYSTEM**

Aetna Capital Management (2/14/91)

Aetna Capital Management (2/14/91-real estate)

Aetna Capital Management (2/14/91-international equity)

**CONCORD RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (5/21/86)

Frank Russell Trust Company (5/21/86)

The Concord Retirement System purchased shares of the PRIT fund.

*Custodian:* Fleet Bank

**DANVERS RETIREMENT SYSTEM**

Boston Financial Management, Inc. (4/3/85)

The Danvers Retirement System purchased shares of the PRIT fund on 8/18/87.

*Custodian:* State Street Bank

**DEDHAM RETIREMENT SYSTEM**

The Dedham Retirement System transferred to the PRIT fund on 6/30/88.

**DUKES COUNTY RETIREMENT SYSTEM**

Aetna Capital Management (3/7/91)

Aetna Capital Management (3/7/91-real estate)

Aetna Capital Management (3/7/91-international equity)

BayBanks, Inc. (5/12/92)

*Consultant:* Wyatt Asset Services, Inc.

*Custodian:* BayBank

**EASTHAMPTON RETIREMENT SYSTEM**

Heritage Bank for Savings & Wright Investors Service (4/12/85- Northampton Institution for Savings changed its name to Heritage Bank for Savings on 6/13/90)

*Custodian:* Investors Bank and Trust

**ESSEX COUNTY RETIREMENT SYSTEM**

Freedom Capital Management Corporation (5/6/85)

State Street Research & Management Company (1/4/90)

*Custodian:* BayBank

**EVERETT RETIREMENT SYSTEM**

BayBanks, Inc. (2/15/85)

*Custodian:* BayBank

**FAIRHAVEN RETIREMENT SYSTEM**

The Fairhaven Retirement System transferred to the PRIT fund on 7/1/86.

**FALL RIVER RETIREMENT SYSTEM**

BayBanks, Inc. (8/27/85)

*Custodian:* BayBank

**FALMOUTH RETIREMENT SYSTEM**

State Street Bank (4/3/85)

*Custodian:* State Street Bank

**FITCHBURG RETIREMENT SYSTEM**

Safety Fund National Bank (4/19/85-name change from First Safety Fund National Bank)

*Custodian:* Safety Fund National Bank

**FRAMINGHAM RETIREMENT SYSTEM**

State Street Research for Met. Life (10/17/90-South Africa Free Equity Fund)

State Street Research for Met. Life (10/17/90-Bond Fund)

GFM Int'l Investors, Ltd.-Met Life (10/9/91-international fixed income)

The Framingham Retirement System purchased shares of the PRIT fund on 11/28/86.

*Custodian:* State Street Bank

**FRANKLIN COUNTY RETIREMENT SYSTEM**

Freedom Capital Corporation (3/31/88)

Metropolitan Life Market Plus (4/24/92-fixed income)

*Custodian:* State Street Bank

**GARDNER RETIREMENT SYSTEM**

The Gardner Retirement System transferred to the PRIT fund on 12/1/86.

**GLOUCESTER RETIREMENT SYSTEM**

Freedom Capital Management Corporation (4/19/85)

The Gloucester Retirement System purchased shares of the PRIT fund.

*Custodian:* BayBank

**GREATER LAWRENCE SANITARY DISTRICT AUTHORITY RETIREMENT SYSTEM**

Beacon Capital Management Inc. (5/23/90-ownership change to Beacon Capital Management Inc. from University Bank and Trust on 12/31/90)

*Custodian:* University Bank and Trust

**GREENFIELD RETIREMENT SYSTEM**

Fleet Bank (7/29/86)

PaineWebber Properties III (4/17/89-real estate)

Harbor Capital Management Company, Inc. (3/14/91)

The Greenfield Retirement System purchased shares of the PRIT fund on 2/25/87.

*Consultant:* The Hannah Group

*Custodian:* State Street Bank

**HAMPDEN COUNTY RETIREMENT SYSTEM**  
Freedom Capital Management Corporation (10/13/88)  
Wellington Management Company (5/8/91)

*Consultant:* PaineWebber  
*Custodian:* BayBank

**HAMPSHIRE COUNTY RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (10/26/89)  
Bank of Ireland Asset Management (12/12/90-international equity)  
Leshner Financial Services, Inc. (12-12-90-equity)  
Lehndorff & Babson Property Fund IV (1-29-91)  
Shurgard Institutional Fund L.P. II (1/29/92-real estate)  
RhumbLine Advisers (2/25/92-equity)

*Consultant:* The Hannah Group  
*Custodian:* State Street Bank

**HAVERHILL RETIREMENT SYSTEM**

Boston Company (7/8/85)  
Lehndorff & Babson Property Fund III (10/27/88-real estate)  
Babson-Stewart Ivory (8/17/89-international equity)  
E.R. Taylor Investments, Inc. (1/15/91-equity)  
Phoenix Investment Counsel, Inc. (1/15/91-equity)  
New England Partners I, L.P. (1/21/92-venture capital) (New England Growth Fund I, L.P.)  
Babson-Stewart Ivory Int'l (1/21/92-international equity) (Babson-Stewart Ivory Int'l LP)  
BioVentures Ltd. Partn. (1/21/92-venture capital) (Commonwealth BioVentures IV L.P.)  
Shurgard Partners L.P. II (1/21/92-real estate) (Shurgard Inst. Fund L.P. II)  
Lehndorff & Babson Real Estate Counsel (1/21/92-real estate)  
(Lehndorff & Babson Property Fund IV)

*Consultant:* The Hannah Group  
*Custodian:* State Street Bank

**HINGHAM RETIREMENT SYSTEM**

The Hingham Retirement System transferred to the PRIT fund on 7/1/90.

**HOLYOKE RETIREMENT SYSTEM**

Freedom Capital Management Corporation (12/6/85)  
Clemente Capital, Inc. (3-1-90-Freedom Global Fund and Freedom Environmental Fund)

*Custodian:* BayBank

**HULL RETIREMENT SYSTEM**

Standard Chartered Equitor Asset Management (10/16/90)

*Custodian:* State Street Bank

**LAWRENCE RETIREMENT SYSTEM**

National Investment Services of America, Inc. (1/24/86)

*Custodian:* BayBank

**LEOMINSTER RETIREMENT SYSTEM**

Safety Fund National Bank (4/1/85-name change from First Safety Fund National Bank)

*Custodian:* Safety Fund National Bank

**LEXINGTON RETIREMENT SYSTEM**

Wellington Management Company (1/25/89)

*Custodian:* BayBank

**LOWELL RETIREMENT SYSTEM**

Shurgard Realty Advisors-Shurgard Inst. Fund L.P. (4/6/89- real estate)

Fleet/Norstar Investment Adv. (9/14/89-equity)

J.L. Kaplan Associates (9/14/89-equity)

Consistent Asset Management (9/14/89-fixed income)

One Federal Asset Management (9/14/89-fixed income)

Metric Institutional Realty-Metric Apt. Fund (2/8/90-real estate)

Charles River Partnership VI-A (5/2/91-venture capital)

United States Trust Asset Management (5/22/91-equity)

Heitman Advisory Corporation (1/14/92-real estate)

(Heitman Real Estate Fund V)

Lehndorff & Babson (1/14/92-real estate)

(Lehndorff & Babson Property Fund IV)

New England Partners I, L.P. (2/19/92-venture capital)

(New England Growth Fund I, L.P.)

PCA Realty Advisors (3/4/92-real estate) (Ruggles Center I)

The Lowell Retirement System purchased shares of the PRIT fund on 7/10/87.

*Consultant:* The Hannah Group

*Custodian:* BayBank

**LYNN RETIREMENT SYSTEM**

de Burlo Group (3/26/85)

*A supplementary regulation was approved for the following:*

Palmer Organization III L.P.-venture capital

*Custodian:* BayBank

**MALDEN RETIREMENT SYSTEM**

de Burlo Group (3/27/85)

*Custodian:* State Street Bank

**MARBLEHEAD RETIREMENT SYSTEM**  
de Burlo Group (4/3/85)

*Custodian:* BayBank

**MARLBOROUGH RETIREMENT SYSTEM**  
Freedom Capital Management Corporation (6/23/88)

*Custodian:* BayBank

**MASSACHUSETTS HOUSING FINANCE AGENCY RETIREMENT SYSTEM**  
The Massachusetts Housing Finance Agency Retirement System transferred  
to the PRIT fund on 6/1/87.

**MASSACHUSETTS PORT AUTHORITY RETIREMENT SYSTEM**  
Wellington Management Company (2/7/85)  
Wellington Management Company (11/24/89-international)

*A supplementary regulation was approved for the following:*

Copley Partners I & II-venture capital

*Custodian:* Shawmut Bank

**MASSACHUSETTS TURNPIKE AUTHORITY RETIREMENT SYSTEM**  
S.J. Britton Investment Counsel (8/6/91)

*Consultant:* New England Pension Consultants

*Custodian:* Shawmut Bank

**MASSACHUSETTS WATER RESOURCES AUTHORITY RETIREMENT SYSTEM**  
Boston Company (2/11/88)  
The Massachusetts Water Resources Authority Retirement System purchased  
shares of the PRIT fund on 2/1/88.

*Custodian:* Fleet Bank

**MAYNARD RETIREMENT SYSTEM**  
BayBanks, Inc. (2/4/91)

*Custodian:* BayBank

**MEDFORD RETIREMENT SYSTEM**  
Fleet/Norstar Investment Adv. (3/14/85)  
Lehndorff & Babson IV (3/12/90-real estate)  
Shurgard Realty Advisors II (3/12/90-real estate)  
Connecticut Investment Management, Inc. (8/14/91-equity)  
PCA Realty Advisors (3/4/92-real estate) (Ruggles Center I)

*Consultant:* The Hannah Group  
*Custodian:* State Street Bank

## **MELROSE RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (4/3/85)

Lehndorff & Babson IV (7/27/89-real estate)

Capital Research & Management Company (3/25/92-EuroPacific Growth Fund)

*Custodian:* Fleet Bank

## **METHUEN RETIREMENT SYSTEM**

David L. Babson (10/16/86)

The Methuen Retirement System purchased shares of the PRIT fund on 4/1/88.

*Custodian:* Fleet Bank

## **MIDDLESEX COUNTY RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (3/26/85)

Oppenheimer Capital (8/25/87)

Income Research & Management (9/28/89-fixed income)

Gardner & Preston Moss, Inc. (9/28/89-fixed income)

Lehndorff & Babson IV (2/1/90-real estate)

Metric Institutional Realty-Metric Inst. Apt. Fund (2/1/90- real estate)

Metropolitan Life (2/1/90-real estate)

Shurgard Realty Advisors-Shurgard Inst. Fund L.P. II (2/1/90- real estate)

MFS Small Cap Growth (5/11/90)

Bank of Ireland Asset Management (1/10/91-international equity)

Equitable Capital Management Corporation (1/10/91-equity)

Hawthorne Associates, Inc. (1/10/91-equity)

Commonwealth BioVentures III L.P. (3/27/91-venture capital)

Charles River Partnership VI-A (4/10/91-venture capital)

BayBanks, Inc. (5/30/91-fixed income)

New England Partners I, L.P. (2/18/92-venture capital)

(New England Growth Fund I, L.P.)

Metric Inst. Realty Adv. (2/18/92-real estate)

(Metric Inst. Apt. Fund II, L.P.)

Rice Capital Group III, L.P. (2/18/92-venture capital)

(Rice Mezzanine Lenders L.P.)

PCA Realty Advisors (3/4/92-real estate)

(Ruggles Center I)

*A supplementary regulation was approved for the following:*

APT Financial Services (APT Income Plus I L.P.)-real estate

*Consultant:* The Hannah Group

*Custodian:* BayBank

## **MILFORD RETIREMENT SYSTEM**

BayBank Middlesex (1/18/89)

*Custodian:* BayBank

**MILTON RETIREMENT SYSTEM**

The Milton Retirement System transferred to the PRIT fund on 7/1/86.

**MINUTEMAN REGIONAL VOCATIONAL TECHNICAL SCHOOL DISTRICT  
RETIREMENT SYSTEM**

The Minuteman Retirement System transferred to the PRIT fund on 7/1/85.

**MONTAGUE RETIREMENT SYSTEM**

The Montague Retirement System transferred to the PRIT fund on 7/1/86.

**NATICK RETIREMENT SYSTEM**

United Investment Counsel (3/14/85)

Met Life/State Street Research Bond Fund (11/27/91)

Met Life/State Street Research S. Africa Free (1/29/92-equity)

*Custodian:* BayBank

**NEEDHAM RETIREMENT SYSTEM**

The Needham Retirement System transferred to the PRIT fund on 7/1/85.

**NEW BEDFORD RETIREMENT SYSTEM**

Massachusetts Financial Services (6/15/89)

Aetna Capital Management (6/15/89)

Aetna Capital Management (6/15/89-real estate)

Aetna Capital Management (6/15/89-international equity)

Lombard Odier (9/28/89-international equity)

The New Bedford Retirement System purchased shares of the PRIT fund.

*Consultant:* Wyatt Asset Services, Inc.

*Custodian:* BayBank

**NEWBURYPORT RETIREMENT SYSTEM**

Boston Financial Management, Inc. (3/28/85)

*Custodian:* State Street Bank

**NEWTON RETIREMENT SYSTEM**

1838 Investment Advisors (3/19/87)

Freedom Capital Corporation (3/19/87)

Bankers Trust Investment Management Ltd. (5/23/90- international equity)

Phoenix Investment Counsel (1/21/92-equity)

David L. Babson (1/21/92-equity)

*Consultant:* Prime (Kidder Peabody)

*Custodian:* Boston Safe Deposit

**NORFOLK COUNTY RETIREMENT SYSTEM**

The Norfolk County Retirement System transferred to the PRIT fund on 11/1/85.

**NORTH ADAMS RETIREMENT SYSTEM**

de Burlo Group (3/25/85)

*Custodian:* Fleet Bank

**NORTH ATTLEBORO RETIREMENT SYSTEM**

PaineWebber Properties III (10/27/88-real estate)

PaineWebber Properties II (6/22/89-real estate)

PaineWebber Independent Fund (7/13/89-real estate)

Connecticut National Bank (12/26/90-equity)

Oxford Capital Management, Inc. (4/9/91)

Babson-Stewart Ivory (12/26/91-international equity) (Babson-Stewart Ivory L.P.)

*Consultant:* The Hannah Group

*Custodian:* BayBank

**NORTHAMPTON RETIREMENT SYSTEM**

de Burlo Group (4/18/85)

*Custodian:* BayBank

**NORTHBRIDGE RETIREMENT SYSTEM**

The Northbridge Retirement System transferred to the PRIT fund on 1/1/88.

**NORWOOD RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (3/5/85)

Dean Witter Dividend Growth Securities, Inc. (11/2/89)

Manufacturers Life Insurance Equity Fund (11/2/89)

Dean Witter Realty Yield Plus L.P. (11/2/89-real estate)

MFS Lifetime Capital Growth Trust (11/17/89)

Capital Research & Management (1/7/92-EuroPacific Growth Fund)

The Norwood Retirement System purchased shares of the PRIT fund on 8/13/87.

*Custodian:* BayBank

**PEABODY RETIREMENT SYSTEM**

Freedom Capital Management Corporation (7/8/85)

Clemente Capital, Inc. (3/22/90-Freedom Global Fund and Freedom Environmental Fund)

*Custodian:* BayBank

**PITTSFIELD RETIREMENT SYSTEM**

Freedom Capital Corporation (6/15/89)

*Custodian:* First Agricultural Bank

**PLYMOUTH RETIREMENT SYSTEM**  
State Street Bank (2/24/89)

*Custodian:* State Street Bank

**PLYMOUTH COUNTY RETIREMENT SYSTEM**

Internal-John McLellan (5/14/85-partial removal of statutory restrictions)  
Babson-Stewart Ivory (5/4/89-international equity)  
Lehndorff & Babson III (5/4/89-real estate)  
Shurgard Realty Advisors (Shurgard Institutional Fund L.P.) (5/4/89-real estate)  
Metric Institutional Realty (Metric Institutional Apartment Fund, L.P.) (10/5/89-real estate)  
Charles River Partnership VI-A (3/26/91-venture capital)  
American Network Group Institutional Fund I, L.P. (4/11/91- venture capital)  
JCW Ventures (Capital Fund Partners IV) (5/30/91-venture capital)  
Shurgard Income Properties III (1/14/92-real estate)  
Shurgard Income Properties IV (1/14/92-real estate)

*Consultant:* The Hannah Group

*Custodian:* State Street Bank

**QUINCY RETIREMENT SYSTEM**

Mass Financial Services (2/9/89)  
M.D. Sass Investors Company (2/9/89)  
RhumbLine Advisers (3/13/92)  
The Quincy Retirement System purchased shares of the PRIT fund on 3/1/90.

*Custodian:* State Street Bank

**READING RETIREMENT SYSTEM**

The Reading Retirement System transferred to the PRIT fund on 6/1/88.

**REVERE RETIREMENT SYSTEM**

Standard Chartered Equitor Asset Management (8/8/90)  
Nutter Investment Advisors (12/31/91-equity)

*Consultant:* Faneuil Hall Securities, Inc.

*Custodian:* State Street Bank

**SALEM RETIREMENT SYSTEM**

Freedom Capital Management Corporation (11/17/88)  
PaineWebber Properties III (11/17/88-real estate)  
1838 Investment Advisors (4/12/90)

*Consultant:* Shearson Lehman

*Custodian:* BayBank

**SAUGUS RETIREMENT SYSTEM**

The Saugus Retirement System transferred to the PRIT fund on 7/1/86.

**SHREWSBURY RETIREMENT SYSTEM**

The Shrewsbury Retirement System transferred to the PRIT fund on 7/1/85.

**SOMERVILLE RETIREMENT SYSTEM**

BayBanks, Inc. (2/19/92)

Standish, Ayer & Wood, Inc. (4/15/92)

*Custodian:* U.S. Trust

**SOUTHBRIDGE RETIREMENT SYSTEM**

Freedom Capital Management Corporation (11/9/89)

*Custodian:* State Street Bank

**SPRINGFIELD RETIREMENT SYSTEM**

BayBanks, Inc. (10/13/87)

Freedom Capital Management Corp. (1/2/92)

Massachusetts Mutual Life Insurance Company (1/2/92)

Wellington Management Company (1/2/92)

*Consultant:* Wyatt Asset Services, Inc.

*Custodian:* BayBank

**STATE EMPLOYEES' RETIREMENT SYSTEM**

The State Employees' Retirement System invests in the MASTERS Trust managed by the Office of the Treasurer. See list of investment counselors for the MASTERS Trust.

**STONEHAM RETIREMENT SYSTEM**

Lehndorff & Babson Real Estate Counsel (Property Fund III)  
(11/17/88-real estate)

Lehndorff & Babson Real Estate Counsel (Property Fund IV)  
(1/15/91-real estate)

Independence Investment Associates (12/10/91)

*Consultant:* The Hannah Group

*Custodian:* BayBank

**SWAMPSCOTT RETIREMENT SYSTEM**

de Burlo Group (3/27/85)

*Custodian:* Fleet Bank

**TAUNTON RETIREMENT SYSTEM**

U.S. Trust Company (6/25/85)

Lehndorff & Babson Real Estate IV (12/21/89-real estate)

Capital Research & Management (5/16/90-EuroPacific Growth Fund)

*Custodian:* U.S. Trust

## **TEACHERS' RETIREMENT SYSTEM**

The Teachers' Retirement System invests in the MASTERS Trust managed by the Office of the Treasurer. See list of investment counselors for the MASTERS Trust.

## **WAKEFIELD RETIREMENT SYSTEM**

The Wakefield Retirement System transferred to the PRIT fund on 7/1/85.

## **WALTHAM RETIREMENT SYSTEM**

BayBanks, Inc. (2/11/85)

*Custodian:* BayBank

## **WATERTOWN RETIREMENT SYSTEM**

Boston Company (3/19/85)

Gardner & Preston Moss, Inc. (10/5/89)

Lehndorff & Babson III (10/5/89-real estate)

Wellington Management Company (3/20/91-small cap. equities)

*Consultant:* Dahab Associates, Inc.

*Custodian:* BayBank

## **WEBSTER RETIREMENT SYSTEM**

Aetna Capital Management (6/26/91-domestic)

Aetna Capital Management (6/26/91-real estate)

Aetna Capital Management (6/26/91-international equity)

## **WELLESLEY RETIREMENT SYSTEM**

Standish, Ayer & Wood (2/27/85)

State Street Research & Management Company (1/23/90)

Consolidated Investment Corporation (Consolidated Standish

Short-Term Asset Reserve Fund) (1/2/91)

Standish International Fixed Income Fund (5/8/91)

State Street Bank & Trust (South Africa Free EAFFE Fund) (1/21/92- international equity)

*A supplementary regulation was approved for the following:*

**Standish Small Equity Fund**

*Custodian:* Shawmut Bank

*Consultant:* William M. Mercer

## **WEST SPRINGFIELD RETIREMENT SYSTEM**

Shawmut Bank, N.A. (2/21/86)

*Custodian:* Shawmut

### **WESTFIELD RETIREMENT SYSTEM**

PaineWebber Properties III (11/17/88-real estate)  
PaineWebber Properties II, III (9/14/89-real estate)  
Freedom Capital (10/16/90)  
State Street Research & Management Company (10/16/90)

*Custodian:* Fleet Bank

### **WEYMOUTH RETIREMENT SYSTEM**

The Weymouth Retirement System transferred to the PRIT fund on 10/1/84.

### **WINCHESTER RETIREMENT SYSTEM**

Freedom Capital Corporation (4/26/90)

*Consultant:* Shearson Lehman

*Custodian:* BayBank

### **WINTHROP RETIREMENT SYSTEM**

Fleet/Norstar Investment Adv. (3/12/85)

*Custodian:* Fleet Bank

### **WOBURN RETIREMENT SYSTEM**

David L. Babson (3/21/88)

*Custodian:* BayBank

### **WORCESTER RETIREMENT SYSTEM**

Fleet Bank (1/14/87)

Safety Fund National Bank (3/6/91)

State Street Research & Management (3/6/91)

Metropolitan Life Insurance Tower Fund (3/6/91-real estate)

Metropolitan Life Insurance (3/6/91-real estate-Closed-End II Fund)

BEA Associates (8/15/91-international equity)

Bank of Ireland Asset Management Ltd. (8/15/91-international equity)

Wellington Management Co. (8/15/91-international equity)

Investment Advisors, Inc. (3/11/92-small cap.)

New England Partners I, L.P. (3/11/92-venture capital)

(New England Growth Fund I, L.P.)

One Federal Asset Management (3/11/92-small cap.)

Rice Capital Group III, L.P. (3/11/92-venture capital)

(Rice Mezzanine Lenders L.P.)

The Worcester Retirement System purchased shares of the PRIT fund on 12/30/86.

*Consultant:* The Hannah Group

*Custodian:* State Street Bank

**WORCESTER COUNTY RETIREMENT SYSTEM**  
Massachusetts Financial Services (8/21/91-equity)  
One Federal Asset Management (8/21/91-fixed income)  
Wellington Management Company (8/21/91-fixed income)

*Consultant:* SEI

*Custodian:* Boston Safe Deposit

The PENSION RESERVE INVESTMENT TRUST (PRIT) Fund has retained the following investment counselors as of February 21, 1992:

*Domestic Equity:*

Alliance Capital Management Corporation  
Bear Stearns Asset Management  
Lazard Freres Asset Management  
Panagora Asset Management  
U.S. Trust Company

*Domestic Fixed Income:*

Fidelity Management Trust Company  
W.R. Huff Asset Management Company  
Lehman Ark Management Company, Inc.  
One Federal Asset Management  
Pacific Asset Management Company  
Putnam Advisory Company  
Standish, Ayer & Wood, Inc.  
TCW Asset Management Company

*International Equity:*

Acadian Asset Management, Inc.  
Baring International Investment Ltd.  
Daiwa International Capital Management Corporation  
General Electric Investment Corporation  
H.D. International Limited  
Nomura Capital Management  
Oechsle International Advisors  
Scudder, Stevens & Clark, Inc.  
State Street Bank & Trust Company

*International Fixed Income:*

Baring International Investment Ltd.  
Rothschild International Asset Management Ltd.

*Special Equity:*

Advent Management Opportunities (Nash & Sells)  
Advent ESSF  
Boston Ventures III  
Forstmann Little III and IV  
INVEXCO  
KKR 1986 and 1987 Funds  
MMG Patricof (Apax Buyin Fund)  
Madison Group L.P.  
Schroder UK II  
Smith Offshore  
Thomas H. Lee Equity Partners  
TCW Asset Management Company  
Emerging Markets Growth Fund, Inc.  
Emerging Markets Management

*Venture Capital:*

Advent Network  
Apax Ventures III  
Apax UK IV  
Apax Risque III  
Apax German European Venture  
Arral Private Equity Trust II  
Commonwealth BioVenture II  
Davis Venture Partners  
Golder, Thoma & Cressey III  
Hancock Ventures III  
Hancock International Equity  
Mayflower Fund/Hancock Ventures  
Morgan Holland Fund II  
M.T.D.C.  
Schroder Ventures III  
Southern California Venture II  
T.A. Associates  
Venture Capital of New England  
Vista III

*Real Estate:*

Aldrich, Eastman & Waltch (AEW Partners)  
INVESCO Realty Advisors (Separate Account and Mass. Housing)  
John Hancock Apt. Fund  
Copley Realty Advisors (DPA Account and Pooled Fund)  
JMB Realty Corporation (Group Trust IV, Cadillac and Randsworth)  
Heitman Realty Advisors (Separate Account and Fund III)  
Mass. Mutual (Separate Investment Account-R)  
T.A. Realty Advisors (Advent Fund II)  
TCW Realty (Fund III)

*Real Estate (cont'd):*

**Bear Stearns Apt. Fund  
Boston Financial Group (Separate Account)**

*Consultant:* Wilshire Associates  
*Custodian:* State Street Bank

The MASTERS Trust has retained the following external investment counselors as of April 10, 1992:

*Domestic Fixed Income:*

Loomis, Sayles & Company

*International Fixed Income:*

The Putnam Companies  
Scudder, Stevens & Clark International

*Domestic Equity:*

The Boston Company  
Chancellor Capital Management, Inc.  
Equitable Capital Management  
Fidelity Management Trust Company  
Goldman Sachs & Company  
Greaves Capital Management  
Independence Investment Associates  
Massachusetts Financial Services  
Morgan Stanley Asset Management  
Numeric Investors, L.P.

*International Equity:*

B.E.A. Associates  
PanAgora Asset Management  
Wardley Investment Services Ltd.

*Domestic Balanced:*

Bailaird, Biehl, & Kaiser  
The RXR Group

*Currency Hedging:*

Cambridge Financial Management, Inc.

*Futures Fund:*

Prudential-Bache Securities

*Alternative Type Investments:*

Massachusetts Fiduciary Advisors  
Sentry Financial Corporation

*Real Estate:*

Aetna Life Insurance  
Aldrich, Eastman & Waltch  
Bear Stearns Asset Management  
Copley Real Estate Advisors  
First Chicago - Brinson Partners  
Franklin Properties, Inc.  
Hancock Realty Investors  
Lehndorff & Babson Real Estate Counsel  
Meridian Point Company  
Metric Institutional Realty Advisors  
Public Storage Institutional Realty  
Shurgard Institutional  
The Sierra Capital Realty Trust  
The Sterling Group, Inc.  
TA Associates Realty Trust

*Venture Capital:*

Beta Partners Limited Partnership  
Bigler Crossroads Investment Management Company  
Clayton & Dublier  
Frontenac Company  
Hancock Venture Partners  
Prudential Equity Investors  
Narragansett Capital, Inc.  
New Enterprise Associates  
TA Communications Partners  
The Vista Group  
Thomas H. Lee Equity Partners  
Welsch, Carson, Anderson & Stowe

*Consultant:* Callan & Associates

*Custodian:* State Street Bank

## **PENSION INVESTMENT ADVISORY UNIT**

**LISA R. REIBSTEIN**  
Director

**ROBERT P. SHAW**  
Assistant Director

## **INVESTMENT ANALYSTS**

**VICTORIA MARCORELLE**  
**MARY J. McNAMARA**

**ROSE CIPRIANI**  
Administrative Assistant

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